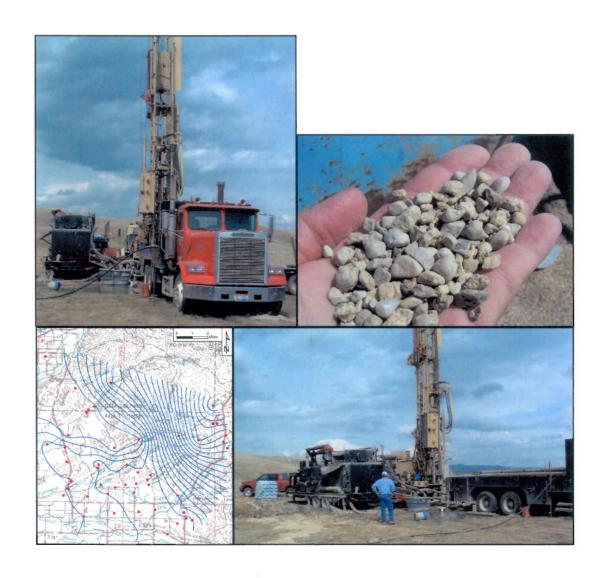
# AQUIFER EVALUATION IN THE BIG GULCH AND LITTLE GULCH AREAS OF SPRING VALLEY RANCH



October 2004



# AQUIFER EVALUATION IN THE BIG GULCH AND LITTLE GULCH AREAS OF SPRING VALLEY RANCH

Prepared for

# SunCor Development Company SunCor Idaho, LLC

485 East Riverside Drive, Suite 300 Eagle, ID 83616

Prepared by

# SPF Water Engineering, LLC

600 East River Park Lane Boise, ID 83706

October 2004







#### **EXECUTIVE SUMMARY**

SunCor Development Company is evaluating development potential for the Spring Valley Ranch property, which is located northwest of Boise, Idaho. The western portion of the Spring Valley Ranch property extends into portions of Little Gulch and Big Gulch. Surface water in both of these gulches drain southwestward into the Lower Boise River Basin. SPF Water Engineering, LLC (SPF) conducted exploration drilling, well testing, and water chemistry analyses to identify and evaluate potential water supplies for the Spring Valley Ranch project.

Two general aquifers are present in the western portion of Spring Valley Ranch. The Willow Creek aquifer is found in a sequence of thick, coarse-grained sand beds with occasional fine gravel zones. Spring Valley Ranch exploration wells SVR 6 and SVR 10 tap this aquifer. Spring Valley Ranch exploration wells penetrating the Northern Margin aquifers, characterized by interbedded sand, silt, and clay sediments, and typically underlain by a very thick clay, include SVR 7 and SVR 9 (and possibly the lower sections of SVR 10).

The Willow Creek Aquifer is also characterized by water levels substantially lower than surrounding Northern Margin aquifers. Furthermore, water chemistry and temperatures in the Willow Creek Aquifer are different than Northern Margin aquifers. Potentiometric surface contours indicate ground water flow from the Willow Creek Aquifer toward the Payette River Valley. Ground water reaching the Willow Creek Aquifer from the upper Willow Creek drainage appears to be tributary to the Payette River, not the Boise River.

These aquifers represent a substantial water resource for initial development of the Spring Valley Ranch project area. High capacity wells, with sustainable yields likely in excess of 2,000 gpm, can be constructed in the Willow Creek aquifer and in some areas of the Northern Margin aquifers.

# **TABLE OF CONTENTS**

1. Introduction	
1.1. Background	
1.2. Purpose and Objectives	
1.3. Aquifers in the Western Portion of the Spring Valley Ra	anch1
2. Well Construction	4
2.1. Exploration Well SVR 6	4
2.1.1. Construction	
2.1.2. Well Test	
2.1.3. Water Chemistry	6
2.1.4. Discussion	6
2.2. Exploration Well SVR 7	
2.2.1. Construction	8
2.2.2. Well Test	9
2.2.3. Chemistry	
2.2.4. Discussion	
2.3. Exploration Well SVR 9	9
2.3.1. Construction	
2.3.2. Well Test	
2.3.3. Chemistry	
2.3.4. Discussion	
2.4. Exploration Well SVR 10	
2.4.1. Construction	
2.4.2. Well Test	
2.4.3. Chemistry	
2.4.4. Discussion	13
3. Hydrogeological Characterization	14
3.1. Introduction	
3.2. Western Spring Valley Ranch Wells	
3.3. Water Chemistry	
3.4. Regional Water Levels	
3.5. Areal Extent	
3.6. Hydraulic Discontinuity	
4. Conclusions	
5 References	23

#### **APPENDICES**

Appendix A: Supplementary Data - Spring Valley Ranch Exploration Well SVR 6

Appendix B: Supplementary Data - Spring Valley Ranch Exploration Well SVR 7

Appendix C: Supplementary Data - Spring Valley Ranch Exploration Well SVR 9

Appendix D: Supplementary Data - Spring Valley Ranch Exploration Well SVR 10

Appendix E: Geologic Cross Section well logs

Appendix F: Additional Water Chemistry Data

#### LIST OF CROSS SECTIONS

Plate 1: Cross Section A - A'

Plate 2: Cross Section B - B'

Plate 3: Cross Section C - C'

# LIST OF FIGURES

Figure 1: Western Spring Valley Ranch area	2
Figure 2: Willow Creek wells.	3
Figure 3: Locations of Exploration Wells SVR 6, 7, 9, and 10	5
Figure 4: Construction of SVR 7	8
Figure 5: SVR 10 well site.	12
Figure 6: Western Ranch Area wells.	16
Figure 7: Anion and cation data from wells in the western portion of Spring Value with Northern Margin Aquifer wells circled	0.000
Figure 8: Arsenic levels in the area north of Eagle, Idaho	18
Figure 9: Water levels in the vicinity of the Western Ranch Area	20
Figure 10: Cross section locations.	21
LIST OF TABLES	
Table 1: Spring Valley Ranch Project water development history	2
Table 2: Big Gulch and Little Gulch exploratory well locations	4
Table 3: Selected water quality parameters.	7

#### 1.1. Background

SunCor Development Company is evaluating development potential of the Spring Valley Ranch property located northwest of Boise, Idaho. The property consists of more than 30,000 acres located in Ada, Gem, and Boise Counties. The western portion of Spring Valley Ranch property extends into portions of Little Gulch and Big Gulch, both of which drain southwestward into the Lower Boise River Basin (Figure 1). Although remote from the initial project development area along State Highway 55, this area was suspected of having productive aquifers.

# 1.2. Purpose and Objectives

The purpose of the hydrologic analyses described in this report was to identify and evaluate potential water supplies for the Spring Valley Ranch project. The general objective was to evaluate potential water resources in the Little and Big Gulch portions of the ranch. Specific objectives of this investigation included the following:

- Drill and construct four exploration wells in Big Gulch and Little Gulch areas.
- 2. Document lithology, collect and analyze water chemistry, and conduct well tests in each new exploration well.
- 3. Evaluate potential for ground water production in Big Gulch and Little Gulch areas on the basis of exploration well data.

This report presents data, results, and conclusions from the drilling, construction, and testing of four exploration wells in the western portion of the Spring Valley Ranch (Table 1). Potentiometric surface maps and water chemistry tables also include data from other wells in the vicinity of Big and Little Gulch.

# 1.3. Aquifers in the Western Portion of the Spring Valley Ranch

A number of wells in the Willow Creek Valley (Figure 2) penetrate a highly productive, coarse-grained sedimentary aquifer. The aquifer is tapped by wells located along Chaparral Road between Highway 16 and the confluence of the North and South Forks of Willow Creek. This aquifer, referred herein as the Willow Creek Aquifer, has been developed by high-capacity wells on the Lynn Ranch in the Willow Creek Valley. These wells penetrate a highly productive aquifer that is found in a sequence of thick, coarse-grained sand beds with occasional fine gravel zones. The water produced from wells in the aquifer is warm (e.g., 75°F to 85°F). Wells tapping the aquifer in Willow Creek Valley generally have static water level elevations of 2400 feet with

depths to water ranging from about 325 to 425 feet below ground surface, depending on local topography.

Date	ltem
February – March 2004	Exploration Well SVR 6 (8-inch x 740 feet) constructed in Big Gulch and test pumped at 350 gpm for 24 hours with 3 feet of drawdown
March – April 2004	Exploration Well SVR 7 (8-inch x 810 feet) constructed in lower Big Gulch and test pumped at 500 gpm for 22 hours, resulting in 30 feet of drawdown.
June – August 2004	Drilling of SVR 9 (8-inch x 805 feet; Little Gulch) and SVR 10 (8-inch; upper Big Gulch); 3-hour pumping test in SVR 9 at 43 gpm with 13 feet of drawdown; 24-hour test of SVR 10 at 55 gpm and 60 feet of drawdown.

Table 1: Spring Valley Ranch Project – western area exploration drilling.

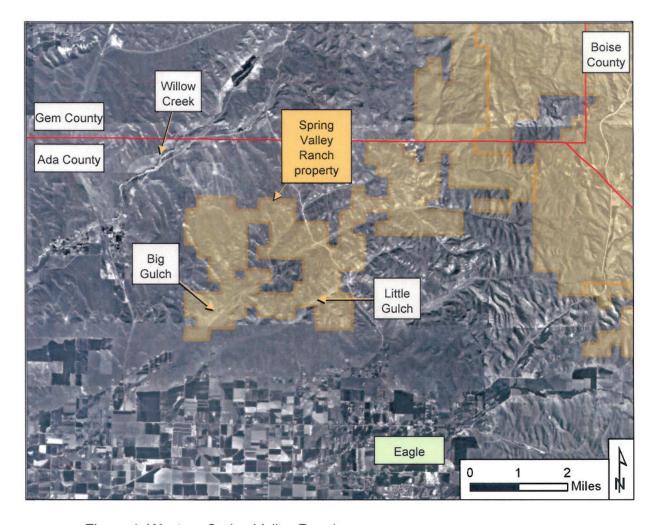


Figure 1: Western Spring Valley Ranch area.

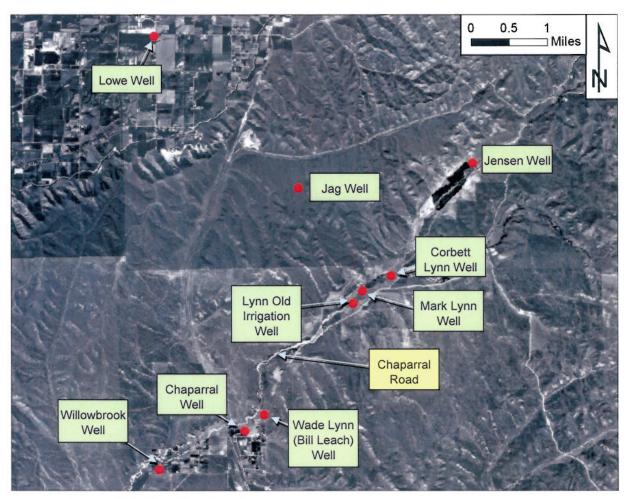


Figure 2: Willow Creek wells.

South of the Spring Valley Ranch property, numerous wells along the northern margin of the Boise Foothills (e.g., wells in the areas north of the Boise River between Eagle and Star) draw water from one or more aquifers characterized by interbedded sand, silt, and clay sediments, and typically underlain by a very thick (hundreds of feet) unit of gray (sometimes described as blue) clay. The clay is associated with the mudstone facies of the Terteling Springs Formation (Burnham and Wood, 1992). The sediments found in these aquifers, referred to herein as the "Northern Margin" aquifers (Squires et al., 1992), appear to belong to Idaho Group sediments found throughout the Boise Valley. These Northern Margin Aquifer sediments may contain productive, coarse grained layers, but are commonly interbedded with silt and clay layers. The interbedded sand, silt, and clay layers form productive cold water aquifers. Wells located in the Boise Valley in the areas north of Eagle and Star typically draw water from these Northern Margin Aquifers.

The Willow Creek Aquifer differs from the Northern Margin aquifers in several ways. The Willow Creek Aquifer contains a much thicker profile of coarse-grained sediments. Water levels in wells tapping the Willow Creek Aquifer along Chaparral Road are

approximately 150 feet lower than in wells just to the south (e.g., Chaparral and Willowbrook subdivisions). Water levels in the Willow Creek Aquifer appear to be very similar to ground water levels in the Payette River Valley near Emmett.

Ground water development potential north of the Willow Creek aquifer is poor. Published geologic maps (Savage, 1958) and reconnaissance investigation for this project (Scanlan, July 11, 2002) suggest that the area northeast of the Willow Creek Aquifer consists primarily of Miocene-age volcanic rocks (Columbia River basalt and Owyhee rhyolite), Miocene-age sedimentary rocks (Poison Creek formation and Payette formation), and Cretaceous-age granitic rocks of the Idaho Batholith. These rock units extend from the upper reaches of Big Gulch north to beyond Pearl. Significant aquifers have not been identified within these rock units.

### 2. WELL CONSTRUCTION

This section describes the drilling and construction of exploration wells SVR 6, SVR 7, SVR 9, and SVR 10 in the western portion of the Spring Valley Ranch. Well locations are listed in Table 2, and shown in Figure 3.

# 2.1. Exploration Well SVR 6

SVR 6 was the first exploration well drilled in the western portion of Spring Valley Ranch. The purpose of SVR 6 was to provide definition of local stratigraphy and explore for water-bearing zones in this area.

Well	Drainage	Location	Additional Description
SVR 6	Big Gulch	SE 1/4, NW 1/4, Section 13, T5N R1W	1 mile SW of Willow Creek Road
SVR 7	Big Gulch	NE 1/4, SW 1/4, Section 23, T5N R1W	2.5 miles SW of Willow Creek Road
SVR 9	Little Gulch	SW ¼, NE ¼, Section 19, T5N R1E	0.5 mile SW of Willow Creek Road
SVR 10	Big Gulch	SW 1/4, SW 1/4, Section 8, T5N R1E	0.5 mile NE of Willow Creek Road

Table 2: Big Gulch and Little Gulch exploratory well locations.

#### 2.1.1. Construction

SVR 6 (IDWR Tag No. 0030892) was drilled by Adamson Pump and Drilling (Nampa, ID) between January 26 and February 27, 2004, using the air-rotary method. The

borehole was overbored from 0 to 105 feet. Casing (8-inch diameter, 0.250-inch wall thickness) was driven to a depth of 738 feet. A sand and cement mixture was placed from 730 to 740 feet to plug the bottom of the casing because of heaving sand. The casing was perforated with a star perforator from 560 to 720 feet. The annular space between the casing and borehole sides above 105 feet was sealed with 3,150 pounds of bentonite. The static water level was recorded at 455 feet below ground surface. The first water encountered by the driller was recorded as 560 feet, although this probably reflects the drilling method; the first water encountered is almost certainly the same as the observed static level (455 feet).

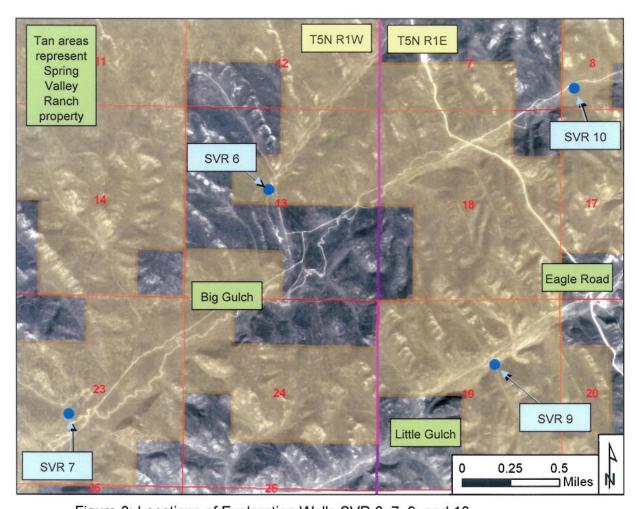


Figure 3: Locations of Exploration Wells SVR 6, 7, 9, and 10.

The lithologic materials encountered by this borehole included coarse subrounded quartz sand with fine to medium gravel; gravel (less than 1-inch diameters); and occasional iron oxide clay sediments. Sediment coloring generally varied from brown to gray with occasional iron oxide staining.

#### 2.1.2. Well Test

A 24-hour pumping test was conducted at this well, followed by a 2-hour recovery test. During the pumping test, SVR 6 experienced a maximum water level drawdown of 2.82 feet with an average discharge rate of 358 gpm during the pumping test. Most of the drawdown can be attributed to head losses in the well bore. The aquifer recovered to within 0.16 feet of the original static level within 3 minutes after turning the pump off. The estimated transmissivity was very large: greater than 1.8 x 10<sup>6</sup> gpd/ft.

#### 2.1.3. Water Chemistry

Water samples were collected from SVR 6 during the pumping test for water quality analyses, which included testing for public drinking water system inorganic chemical constituents. Results are summarized in Table 3; full results are provided in Appendix A. The laboratory analyses from SVR 6 generally indicated good quality water, with the exception of arsenic (0.067 mg/L).

The water temperature is of particular interest in SVR 6. The water temperature was originally measured at 81°F. Following well completion, a temperature profile of the well bore was conducted. The water temperature ranged from 87.6 degrees at 460 feet to 80.4 degrees at 727 feet. A decrease in temperature with depth is not typical of most aquifers. The decreasing temperature with depth may reflect geothermal inflow near the top of the Willow Creek Aquifer or thermal stratification within the aquifer.

#### 2.1.4. Discussion

Results of drilling and test pumping Exploration Well SVR 6 suggest that the potential for municipal production at this site is very high. However, the arsenic level exceeded both the current and future maximum contaminant levels, and will require treatment for public water system use. Otherwise, water quality (based on inorganic constituents) appears to be acceptable for public water system use. The deep water table (455 feet) will result in a high pumping lift.

# 2.2. Exploration Well SVR 7

Exploration well SVR 6 clearly penetrated a highly productive aquifer. The purpose of SVR 7 was to determine whether this aquifer extended to the southwest to near the southern boundary of the Spring Valley Ranch property. SVR 7 was drilled approximately 1.6 miles to the southwest of SVR 6 in Big Gulch (Figure 3), at a location approximately 850 feet north of the Big Gulch stockwater well.

Constituent	MCL	SMCL	SVR 6	SVR 7	SVR 9	SVR 10	Lynn Old Irrig. Well	Wade Lynn Well	Corbett Lynn Well
Date			3/16/04	4/21/04	6/23/04	8/19/04	6/7/04	6/7/04	6/7/04
Arsenic	0.01*		0.067	<0.005	<0.005	0.012	.014	<0.005	0.027
Ammonia			0.13	<0.04	0.10	<0.04	<0.04	0.58	0.05
Antimony	0.006		<0.005	<0.005	<0.005	<0.005			
Barium	2		<0.05	<0.05	0.10	<0.05			
Beryllium	0.004		<0.0005	<0.0005	<0.0005	<0.000 5			
Cadmium	0.005		<0.0005	<0.0005	<0.0005	<0.000 5			
Calcium			9.71	29.1	24.9	17.1	17.1	17.2	20.9
Chromium	0.1		<0.002	<0.002	<0.002	0.002			
Iron		0.3	0.09	0.11	0.60	0.36	<0.05	0.08	0.05
Lead	0		<0.005						
Magnesium	V		0.69	8.19	10.4	3.20	0.45	2.84	0.24
Manganese		0.05	<0.05	<0.05	0.12	<0.05	<0.05	0.19	<0.05
Mercury	0.002		<0.0002	<0.0002	<0.0002	<0.000 2			
Molybdenum			<0.05						
Nickel			<0.02	<0.02	<0.02	<0.02			
Potassium			1.5	2.0	2.0	2.4	1.0	2.0	1.3
Selenium	0.05		<0.005		<0.005	<0.005			
Silica			36.2				36.4	37.4	40.3
Sodium			27.8	22.9	26.9	12.3	40.9	30.3	27.8
Thallium	0.002		<0.002	<0.002	<0.002	<0.002			
Vanadium			<0.05						
Nitrate	10		1.09	0.31	<0.2	5.2	1.3	<0.2	<0.2
Nitrite	1		0.02	<0.01	<0.01	<0.01			
Phosphate			<0.05						
Alkalinity			58.8						
Bicarbonate			58.8	114	107	53.5	94.1	124	77.2
Chloride		250	5	5	10	2	6	3	4
Fluoride	4	2	0.95	0.44	0.45	0.24	4.09	0.3	1.71
Hardness			<0.05	110	102	51.8	45.6	55.4	54.4
Sulfate		250	13	24	44	<1	19	1	29
Sulfide			<0.05	<0.05		<0.05			
TDS		500	98	212	216	70	154	154	120
TSS			<3						
Conductivity (lab)					336				
Field Parameter	s								
Temp. (C)			27.3	20.1	20	24.4	27.9	30.5	29.8
Temp (F)			81.1	68.1	68	75.9	82.2	86.9	85.6
SC umhos/cm			182.1	300			280	254	245
EC umhos/cm			190.5			160	296	278	270
pН		6.5-8.5	7.67	7.0		7.64	7.9	7.3	7.6

Table 3: Selected water quality parameters.

#### 2.2.1. Construction

SVR 7 (Well Tag No. 0031062) was drilled and constructed (Figure 4) between March 10 and April 10, 2004 by Adamson Pump and Drilling Company using the mud rotary method. An 8-inch diameter open borehole was drilled to a depth of 815 feet for exploration purposes. The borehole penetrated alternating layers of sand, silt, and gray-brown clay to a depth of approximately 270 feet, and a very coarse, clean, brown sand from a depth of 270 feet to 340 feet. The coarse sand was underlain by medium gray (bluish) clay with occasional fine sand and silt.

The zone from 270 to 340 feet was recognized as a potential producing zone. Well cuttings and a geophysical log for the section below 340 feet did not suggest significant production potential. Based on these determinations, a decision was made to complete a test well from 280 to 350 feet. The first step in well completion was to abandon the lower exploratory borehole by pressure grouting with bentonite from 815 feet to 380 feet. The borehole above 380 feet was then reamed to a 12-inch diameter. The well was constructed with 8-inch diameter shutter screen from 280 to 340 feet, 8-inch diameter torch perforated casing from 340 to 350 feet, and 8-inch diameter blank casing extending to above ground surface. A 5/16-inch gravel pack was installed in the annular space from 242 to 380 feet. A bentonite grout seal was pumped in place from 242 feet to ground surface.



Figure 4: Construction of SVR 7.

Following well completion, the well was developed by air-lift pumping at a rate of 100 to 200 gpm for two hours. The static water level following completion was noted at 161 feet below ground surface.

#### 2.2.2. Well Test

A pumping test was conducted in SVR 7 for a period of 22 hours and 15 minutes. The test began as a step-rate test, with an initial discharge rate of 300 gpm for 25 minutes, followed by a rate of 400 gpm for 30 minutes, and a rate of 500 gpm for the remainder of the test period. Water levels were monitored in both the pumping well and in a stockwater well located approximately 850 feet south of SVR 7. The maximum pumping drawdown in SVR 7 was approximately 30 feet. The water level recovered to within 1.5 feet of the pre-pumping static level within minutes after turning the pump off, and to within 0.31 feet of the static level after 7.25 hours. Transmissivity was estimated to be over 300,000 gpd/day in the pumping well, and approximately 240,000 to 300,000 gpd/ft based on observation well drawdown and recovery data.

#### 2.2.3. Chemistry

The chemistry (Table 3) of water produced from this well is excellent. Arsenic concentrations are below the detection limit, and the total dissolved solids are more than double the level found in SVR 6. Temperature was measured at 68°F. The water is richer in calcium and magnesium than the water in SVR 6, but contains less sodium.

#### 2.2.4. Discussion

The aquifer penetrated by SVR 7 appears to be substantially different than the aquifer encountered by SVR 6 just 1.6 miles to the northeast. These differences are apparent in water levels, water chemistry, and lithology. Water levels in SVR 7 are approximately 170 feet higher than in SVR 6. Water chemistry is substantially different – SVR 7 lacks the arsenic found in SVR 6, and has higher TDS levels. The thick gray clay zone encountered in at depth in SVR 7 was not found in SVR 6.

Results of drilling and test pumping of Exploration Well SVR 7 suggest that the potential for municipal production at this site is high. Based on initial chemistry analyses, water from SVR 7 would not require treatment for arsenic.

# 2.3. Exploration Well SVR 9

Two different aquifers were identified with exploration wells SVR 6 and SVR 7. The purpose of SVR 9 was to determine whether either of these aquifers extended into the Little Gulch area of the Spring Valley Ranch property.

#### 2.3.1. Construction

Exploration well SVR 9 (IDWR Tag No. D0031492) was drilled by Stevens and Sons Well Drilling using the mud-rotary method. Drilling began with an exploratory borehole that was advanced to a depth of 810 feet. Examination of a geophysical log and well cuttings suggest that no water-bearing zones are present below 265 feet. The borehole was abandoned below 265 by filling with bentonite grout. The borehole above 265 feet was then reamed to a 12" diameter, cased with 8-inch steel to 235 feet, and two 10-foot sections of stainless-steel wire-wrapped screen were placed between 235 and 245 feet and between 253 and 263 feet. A driller's report and other information for this well are included in Appendix C.

The well was developed by pumping and surging. The static water level following development was observed at 192 feet below ground surface.

The borehole penetrated a variety of fine to coarse sands, clay, clayey sands, and sandy clays to a depth of approximately 270 feet. From 270 feet to 810 feet the borehole encountered almost continuous medium gray clay, with occasional silt and fine sand. The continuous clay is probably associated with mudstone facies of the Terteling Springs Formation (Burnham and Wood, 1992). Based on lithology, the most productive horizon in this well appears to be the zone from approximately 190 feet (i.e., the static water level) to 265 feet, consisting of reddish brown to light brown, fine to coarse sands with occasional clay stringers.

#### 2.3.2. Well Test

A 3-hour pumping test was conducted in this well on 6/23/04, followed by a 25 minute recovery test. During the pumping test, SVR 9 experienced a maximum water level drawdown of 13.9 feet at an average discharge rate of 43 gpm. Pumping water levels quickly stabilized at about 211 feet below ground surface and remained stable during the test. Within 13 minutes after the pump was stopped water levels were at pre-test levels and stable. Most of the drawdown in the well during pumping appears to be related to well loss. Transmissivity was estimated to be 4,500-20,000 gpd/ft. However, the short test duration, stable pumping water levels, and immediate recovery renders the transmissivity estimate uncertain.

#### 2.3.3. Chemistry

Water samples were collected on June 23, 2004 from SVR 9 for water quality analyses, which included testing for public drinking water system inorganic chemical constituents. Laboratory results indicate elevated iron and manganese concentrations, but otherwise excellent water chemistry (Table 3). The water temperature during test pumping on 6/23/04 was 68°F (20°C).

The driller measured the bottom-hole temperature (at 810 feet below ground surface) by running a bit to the bottom of the borehole, then pulling up and measuring the temperature of a chunk of clay attached to the bit. He recorded a temperature of 93°F

in the clay. The actual temperature of the clay is probably higher (but cooled as the bit was retracted to ground surface).

#### 2.3.4. Discussion

SVR 9 encountered a zone of relatively productive sands from approximately 190 to 265 feet, but the saturated thickness is less than 75 feet. Based on this exploration well, the highly productive aquifer encountered in Big Gulch does not extend into Little Gulch. The well test indicates the aquifer at SVR 9 may be capable of yielding more than 100 gpm but the aquifer is thin and static water levels are near the top of the aquifer. Consequently, long-term production potential is limited. Based on these findings, additional exploration for municipal water supplies in Little Gulch does not appear warranted.

# 2.4. Exploration Well SVR 10

Exploration well SVR 10 is located approximately 3.2 miles from SVR 7 and approximately 2 miles from SVR 6 in the upper portion of Big Gulch. The purpose of this well was to determine whether the highly productive aquifer encountered in SVR 6 extends into the upper portion of Big Gulch.

#### 2.4.1. Construction

Two boreholes were drilled at the site for SVR 10. The first was drilled by Adamson Pump and Drilling Company beginning on June 7, 2004 using the air-rotary method (Figure 5). As a first step, a nominal 12-inch open hole was drilled with air-rotary to 100 feet. Casing (8-inch diameter, 0.250-inch wall thickness) was then set in the open hole, and then advanced to a depth of 620 feet using air-rotary drill and drive methods. Below 620 feet, an open borehole was advanced to 680 feet. Because of slow drilling at 680 feet the driller decided to change to a different type bit. While pulling the drill pipe and bit from the hole it became stuck at a depth of 520 feet. The driller attempted to drill through the obstruction for about 4 days then decided he would not be able to do so. Consequently he put backwards rotation on the drill pipe and unscrewed it, and was able to retrieve 260 feet of drill pipe. Apparently the casing broke or buckled at 520 feet. It may be possible to use the well for measuring water levels but for all intents and purposes the original well was lost. The driller moved forward about 25 feet and began a replacement well on June 29, 2004.

The replacement well for SVR 10 (IDWR Tag No. 0031220) was drilled using the mud rotary drilling method. A 12-inch diameter borehole was drilled to a depth of 600 feet. An 8-inch well casing was set and sealed to 600 feet, and the casing was sealed in place with bentonite grout. The well was then extended with 8-inch diameter bit to a total depth of 1,005 feet. A single-point resistivity geophysical log was conducted on the borehole below 600 feet.



Figure 5: SVR 10 well site.

Analysis of the drill cuttings and geophysical log shows that the borehole penetrated primarily coarse-grained sand with minor layers of clay and fine gravel from surface to approximately 675 feet. From 675 to 1,005 feet, the borehole penetrated primarily dark gray clay, with clayey sand between 800 and 880 feet. The section above 675 feet appears to be similar to the sediments encountered throughout the 740 feet of section penetrated by SVR 6, the sediments above 340 feet in SVR 7, and the sediments above 240 feet in SVR 9. Similarly, the sediments below 675 feet are similar to the dark gray sediments found below 340 feet in SVR 7 and below 240 feet in SVR 9.

The driller described substantially more clay in the second SVR 10 borehole than in the first borehole (which were approximately 25 feet apart). We attribute the difference in the driller's description to the appearance of cuttings produced by the mud-rotary drilling method as compared to cuttings from the air-rotary drilling method used in the first borehole.

Based on interpretation of the cuttings and geophysics, the driller was instructed to backfill the borehole to approximately 665 feet, and install 6-inch screen and casing between 580 and 665 feet. Proposed screen intervals were 655 to 665 feet and 605 to 625 feet. Unfortunately, the screen assembly became stuck during installation and the screens were installed from 580 to 600 feet (inside of the 8-inch pipe) and from 630 to 640 feet (in a zone consisting primarily of clay). The well was subsequently developed by air-lift pumping at a rate of 50 gpm. As with SVR 9, most of the

drawdown during test pumping can be attributed to well loss rather than aquifer drawdown.

#### 2.4.2. Well Test

The well was test pumped for approximately 24 hours at a rate of 55 gpm. Water level declined approximately 60 feet during the first 8 minutes and then stabilized for the remainder of the test. Upon stopping the pump, the water level recovered to static water level within 8 minutes. Static water level was 485 feet below top of casing.

#### 2.4.3. Chemistry

Water samples were collected during test pumping on August 19, 2004. Water chemistry analysis results (Table 3) indicated an arsenic concentration (0.012 mg/L) that exceeds the current standard (0.010 mg/L), but is not nearly as great as the arsenic concentration in SVR 6 (0.067 mg/L). The arsenic concentration is more similar to that in the Lynn Old Irrigation Well and the Corbett Lynn Well (0.014 and 0.027 mg/L, respectively). The iron concentration in SVR 10 (0.36 mg/L) exceeded the secondary standard for iron (0.3 mg/L), although the iron concentration in SVR 10 was less than in SVR 9 (0.60 mg/L). Interestingly, water from SVR 10 contained elevated nitrate (5.2 mg/L), which does not exceed the maximum contaminant level of 10 mg/L but is unusually high for ground water underlying open rangeland (background concentrations of nitrate are generally less than 0.20 mg/L).

There is increasing concern about the presence of radiological constituents in some Treasure Valley ground water. Water from SVR 10 was analyzed for uranium, radium 226, and radium 228. None of these constituents were detected in SVR 10 samples.

#### 2.4.4. Discussion

The uppermost 675 feet of SVR 10 appears to penetrate the coarse-grained sands (with minor layers of clay and fine gravel) that typify the Willow Creek Aquifer. These were the same coarse-grained sediments encountered in the entire SVR 6 borehole, and in the upper portions of SVR 7 and SVR 9.

The lower portion of the SVR 10 borehole penetrated several hundred feet of thick, bluish-to-light gray clay associated with the lacustrine Idaho Group sediments (mudstone facies of the Terteling Springs Formation). It is therefore likely that this clay sequence underlies the entire Willow Creek Aquifer, even though the clay was not encountered in SVR 6.

The coarse-grained sediments typifying the Willow Creek Aquifer are clearly thinning toward the east. Water levels are above the aquifer-clay transition in SVR 10, but largely below the coarse-grained sediments in SVR 7 and SVR 9. The saturated section of the aquifer is approximately 150 feet thick at SVR 10.

The response to test pumping SVR 10 suggests that the well has poor hydraulic connection to a highly transmissive aquifer. Aquifer parameters could not be accurately quantified from this test. It appears that the aquifer zones penetrated by the well are productive (based on drill cuttings and the geophysical logs), which is not reflected in the test pumping. The low productivity of the test well probably reflects a problem with well completion (e.g., incorrect screen placement) rather than aquifer productivity.

The water chemistry in SVR 10 (Table 3) shows some characteristics of water in other Willow Creek Aquifer wells (e.g., SVR 6 and the three Lynn wells on Chaparral Road). Water in SVR 10 contained elevated arsenic concentrations, relatively low TDS levels, and greater bicarbonate concentrations than the two test wells that appear to be completed in the Northern Margin aquifers (SVR 7 and SVR 9). Water in SVR 10 also has a warm temperature (76 °F), although not quite as warm as the SVR 6 and the other Willow Creek Aquifer wells. However, the iron concentration in SVR 10 is similar to SVR 7 and SVR 9. Water chemistry in SVR 10 probably reflects mixing between waters in the Willow Creek Aquifer and Northern Margin aquifers. Alternatively, the water in SVR 10 may be a mixture of surface recharge from the Big Gulch watershed and upwelling of older geothermal water.

# 3. HYDROGEOLOGICAL CHARACTERIZATION

#### 3.1. Introduction

Four exploratory wells (SVR 6, SVR 7, SVR 9, and SVR 10) were drilled in the Big and Little Gulch area of Spring Valley Ranch ("Western Ranch Area") as part of this project. General lithologic descriptions, well testing results, and water chemistry results were presented in Section 2.

This section presents a discussion of aquifer characteristics in the Western Ranch Area. The discussion is based on exploratory drilling results, water level data, geological cross-sections, and water chemistry. The purpose of the discussion is to evaluate the extent of water supply and possible sustainable yield from this area.

# 3.2. Western Spring Valley Ranch Wells

Based on similarities in geology, temperature, chemistry, and water levels, it appears that wells SVR 6 and SVR 10 in the Big Gulch area encountered the Willow Creek Aquifer (see Section 1.3 for a general description of the Willow Creek Aquifer). SVR 6 penetrated a very thick, coarse grained, subangular quartz sediment aquifer with a deep static water level (455 feet at SVR 6), very high transmissivity, and warm temperatures (81°F). The high transmissivity is apparent from both the pumping test

response at SVR 6 (T>1,000,000 gpd/ft) and a nearly flat water table (see Section 2.1.2). Saturated aquifer thickness at SVR 6 is more than 285 feet.

Wells SVR 7 and SVR 9 penetrate sediments that are similar to (and probably the same as) the Northern Margin aquifers found in the northern portion of the Boise River Valley. The wells penetrated interbedded sand, silt, and clay zones, underlain by the massive clay sequence associated with the mudstone facies of the Terteling Springs Formation (Burnham and Wood, 1992). The water-bearing section of the aquifer appears to be 200 to 300 feet thick at SVR 7 in lower Big Gulch. The water-bearing section was less than 100 feet thick at SVR 9 in Little Gulch, suggesting that the aquifer "pinches out" to the northeast, and has little development potential in that area. More than 500 feet of low permeability clay or mudstone underlie the water-bearing section in SVR 9.

SVR 10 penetrates coarse-grained Willow Creek Aquifer sediments seen in SVR 6, but also extends into the thick clay sequence associated with Idaho Group lacustrine deposits (Terteling Springs mudstone facies) found in SVR 7 and SVR 9. Thick, coarse-grained sediments clearly diminish to the east, suggesting that SVR 10 is near the eastern margin of the Willow Creek Aquifer.

#### 3.3. Water Chemistry

Water chemistry in the western portion of Spring Valley Ranch was evaluated using project data and data available from previous water quality sampling by the IDWR, USGS, and other agencies. Project data included water chemistry analyses from SVR 6, SVR 7, SVR 9, SVR 10, the ranch's two stockwater wells in Big Gulch and Little Gulch (see Scanlan Engineering, April, 2003), and the Corbett Lynn Well, Lynn Old Irrigation Well, and Wade Lynn Well in the Willow Creek drainage (see Figure 6).

A number of differences were apparent between water drawn from the hypothesized Willow Creek Aquifer and the Northern Margin aquifers. First, ground water from the Willow Creek Aquifer had water temperatures greater than 81.1°F (the highest temperature of 86.9°F was measured in the Wade Lynn Well). In contrast, water temperatures in the Northern Margin Aquifers are lower (e.g., SVR 7 and SVR 9 had water temperatures of 68°F). SVR 10 had a water temperature (75.9°F), which is between the elevated temperatures of the Willow Creek Aquifer wells (e.g., SVR 6) and the Northern Margin wells (e.g., SVR 7 and SVR 9).

Second, anion and cation compositions (Figure 7, ) were similar for all of the wells thought to draw water from Northern Margin aquifers (SVR 6, SVR 7, SVR 9, and the Big Gulch and Little Gulch stockwater wells), although SVR 9 had a greater chloride concentration than the others in this group. Waters from wells thought to penetrate the Willow Creek Aquifer had different anion and cation compositions than those from the Northern Margin aquifers. Interestingly, anion and cation compositions were also different among waters from the Willow Creek Aquifer, suggesting that mixing occurs as water flows into the Willow Creek Aquifer.

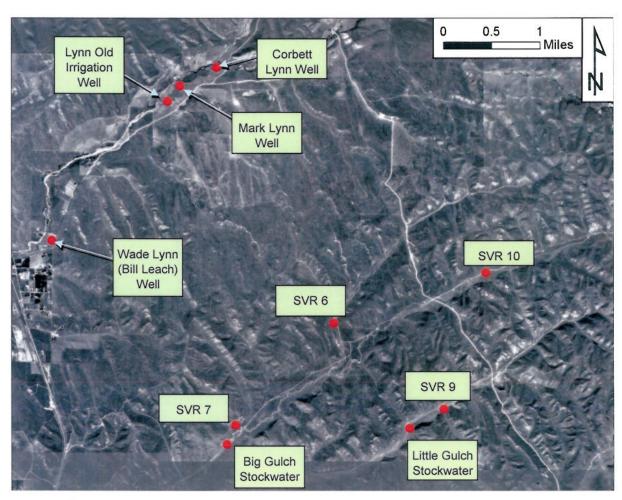


Figure 6: Well locations for water chemistry data.

TDS concentrations in all of the wells associated with Northern Margin aquifers were over 200 mg/L (with the exception of the Little Gulch Stockwater well, which had a TDS concentration of 192 mg/L). In contrast, water from wells in the Willow Creek Aquifer had TDS concentrations less than 154 mg/L (SVR 6 and SVR 10 contained 98 and 70 mg/L, respectively).

SVR 6, SVR 10, the Lynn Old Irrigation Well, and the Corbett Lynn Well showed elevated arsenic levels (water from all 4 wells exceeded the current arsenic MCL of 0.010 mg/L, which will be enforced beginning in 2006). In comparison, the arsenic concentrations in SVR 7 and SVR 9 were below the detection limit of 0.005 mg/L. The Big and Little Gulch Stockwater wells had arsenic concentrations of 0.005 and 0.006 mg/L, respectively.

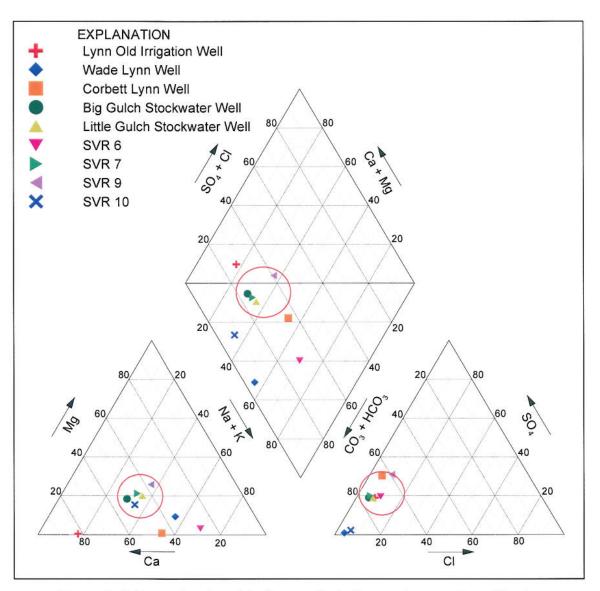


Figure 7: Anion and cation data from wells in the western portion of Spring Valley Ranch, with Northern Margin Aquifer wells circled.

Regional arsenic values, based on water chemistry results from Spring Valley Ranch wells and IDWR data, are shown in Figure 8. A number of wells north of Eagle and Star at the base of the Boise Foothills contain arsenic concentrations ranging from 0.010 to 0.050 mg/L – the highest observed value was 0.027 mg/L. Similarly, Spring Valley Ranch wells in the Sandy Hill area and the associated spring that supplies the ranch headquarters all contain arsenic concentrations exceeding 0.010 mg/L.

The water chemistry in the Wade Lynn well seemed somewhat anomalous. The water level and temperature were consistent with the Willow Creek Aquifer, but the well had low arsenic levels (below detection limit). Several other water chemistry constituents in the Wade Lynn wells also indicate water chemistry similarities with the Northern

Margin Aquifers (e.g., magnesium bicarbonate). These similarities in the Wade Lynn Well may reflect dilution from subsurface inflows from the south.

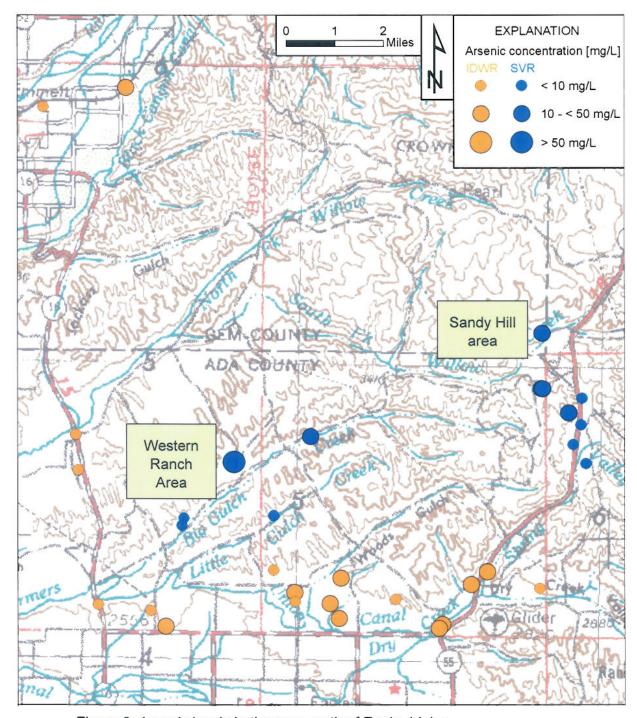


Figure 8: Arsenic levels in the area north of Eagle, Idaho.

Fluoride is a constituent frequently associated with geothermal water. Water temperatures in the Willow Creek Aquifer (e.g., SVR 6) were found to be higher than in the Northern Margin Aquifer. The fluoride concentration in SVR 6 (0.95 mg/L) was twice that found in SVR 7 (0.44 mg/L). Fluoride concentrations in the Lynn Old Irrigation Well and the Corbett Lynn Well were 4.09 and 1.71 mg/L, respectively. This, along with elevated water temperatures, suggests that there probably is geothermal inflow into the Willow Creek Aquifer. Interestingly, despite a somewhat elevated temperature, the fluoride concentration in SVR 10 (0.24 mg/L) was lower than SVR 7 and SVR 9 (0.44 and 0.45 mg/L, respectively).

In summary, water chemistry in wells associated with the Willow Creek Aquifer appear to be different from water in wells associated with Northern Margin Aquifers. The differences include different water temperatures, higher arsenic concentrations, and generally lower TDS levels.

From a water production perspective, water quality in SVR 6 (reflecting the Willow Creek Aquifer) is generally good, with relatively low total dissolved solids, low iron, and low manganese. However, the arsenic concentrations exceed both current and future arsenic standards, and will require treatment prior to municipal use. Water quality in SVR 7, Big Gulch Stock Well, and Little Gulch Stock Well (Northern Margin aquifers) is excellent, although TDS values are higher (but still well within municipal standards) than those found in the Willow Creek wells. Arsenic, if present in water samples from these wells, is below the U.S. Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL). Water in SVR 10 has characteristics of both the Willow Creek Aquifer (elevated temperature and arsenic, low TDS) and Northern Margin aquifers (low fluoride and elevated iron).

Temperature also may be an issue of concern for development of the Willow Creek Aquifer. Temperatures appear to range from approximately 75°F to 90°F. Groundwater with a temperature of more than 85 degrees F is classified as low-temperature geothermal. There are regulatory restrictions on the use of such water for non-heating uses. Exemptions from rules restricting the use of low-temperature geothermal water can be obtained in instances where there is no other practical water source. Temperature is not an issue of concern for wells in the Northern Margin aquifer. Water temperature from SVR 7 was 68 degrees, which is very suitable for municipal use.

# 3.4. Regional Water Levels

A potentiometric surface map that includes the Western Ranch Area was developed using water level data obtained from exploration wells and existing wells (Figure 9). In general, hydraulic gradients indicate ground water flow from northeast to southwest, reflecting local topography. However, a local depression is apparent in the middle section of Big Gulch and a portion of Willow Creek – the area identified as the Willow Creek Aquifer. Wells with available water level data completed in this aquifer (SVR 6, three Willow Creek wells, and the Jag well; see Figure 9) all indicate a water elevation

consistent with the Payette River Valley near Emmett. Potentiometric surface contours indicate ground water flow in the Willow Creek Aquifer toward the Payette River. Water level data from Little Gulch wells indicate ground water flow from the Boise Foothills into the Lower Boise River Valley.

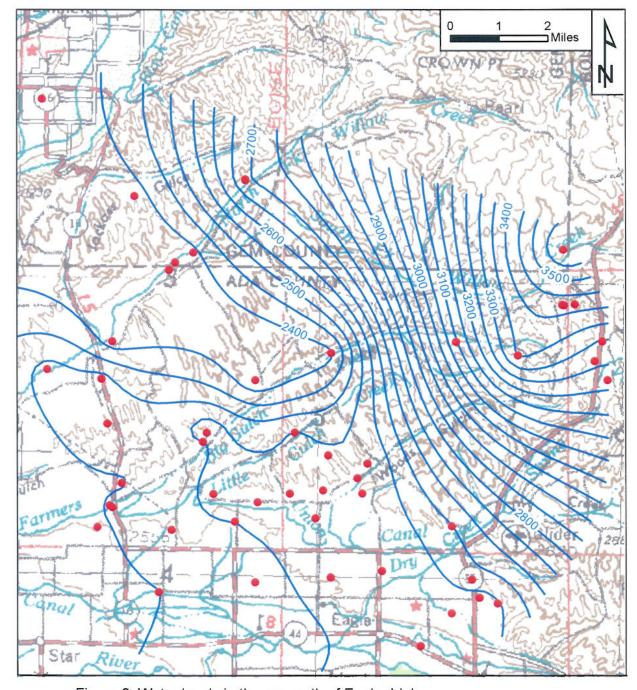


Figure 9: Water levels in the are north of Eagle, Idaho.

#### 3.5. Areal Extent

Several cross sections were drawn to help evaluate areal extent of the Willow Creek and Northern Margin Aquifers in the western portions of Spring Valley Ranch (Figure 10, Appendix E). Based on available lithologic and water level (Figure 8) information, the Willow Creek Aquifer appears to extend from the middle portion of Big Gulch toward the Payette River Valley near Emmett. The Willow Creek Aquifer sediments were not apparent in wells SVR 7 (lower Big Gulch) or SVR 9 (Little Gulch), although it is possible that the sands in the upper portions of these wells reflect a transition between the predominantly coarse-grained sands of the Willow Creek aquifer and the medium- and fine-grained sands typical of the Northern margin aquifers. The Willow Creek sediments were also not present in the Jag well, which is located between the Payette Valley and the Willow Creek Aquifer area. However, the water level in the Jag Well indicates that the Jag Well area is hydraulically connected to the Willow Creek Aquifer.

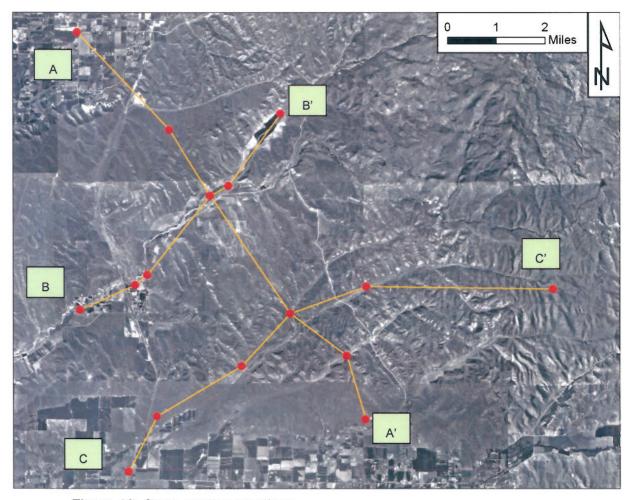


Figure 10: Cross section locations.

Hydraulic gradients north of the Willow Creek Aquifer are steep, generally suggesting both low permeability rock types and high topographic relief. The northern extent of the Willow Creek Aquifer can be defined by the change from high gradient to low gradient in Figure 9.

The Northern Margin aquifers are areally extensive to the south, southeast, and southwest from the Willow Creek Aquifer. Similar lithology is observed in wells between the Boise Foothills and the Boise Valley, from West Boise to beyond Star.

#### 3.6. Hydraulic Discontinuity

Water levels in the Willow Creek Aquifer are substantially lower than water levels in the Northern Margin aquifers, as typified by water levels in SVR 6 and SVR 7. For example, water levels in SVR 6 are approximately 170 feet lower than in SVR 7, which is located about 1.5 miles southwest of SVR 6. These differences, combined with lithologic differences, suggest a hydrogeologic discontinuity between the Northern Margin aquifer in lower Big Gulch and the Willow Creek Aquifer. The nature of the discontinuity is unclear at this time. Given the sediments encountered in the Big and Little Gulch wells, faulting seems most likely. The discontinuity juxtaposes the coarse-grained alluvial sands and gravels of the Willow Creek Aquifer against the layered lake-bed and deltaic sediments of the Northern Margin aquifer. A similar discontinuity likely forms the northeast boundary of the Willow Creek Aquifer. The apparent boundary follows the northwest trend of the fault system that defines the northern edge of the Snake River Plain.

# 4. CONCLUSIONS

The following conclusions can be drawn as a result of this investigation:

- The western portion of the Spring Valley Ranch overlies a geologically-complex, hydrologically unexplored area. At least two aquifers are present in the western portion of the Spring Valley Ranch the Willow Creek Aquifer and one or more aquifers associated with Northern Margin Aquifers found in other areas north of Eagle.
- 2. The aguifers represent a significant water resource.
- 3. The Willow Creek Aquifer is identified by water levels substantially lower than surrounding Northern Margin aquifers.
- 4. Water chemistry and temperature characteristics in the Willow Creek Aquifer are different than Northern Margin aquifers.
- Potentiometric surface contours indicate ground water flow from the Willow Creek Aquifer toward the Payette River Valley.

- Ground water reaching the Willow Creek Aquifer from the upper Willow Creek drainage appears to be tributary to the Payette River, not the Boise River.
- 7. High capacity wells can be constructed in both the Willow Creek and Northern Margin aquifers.

#### 5. REFERENCES

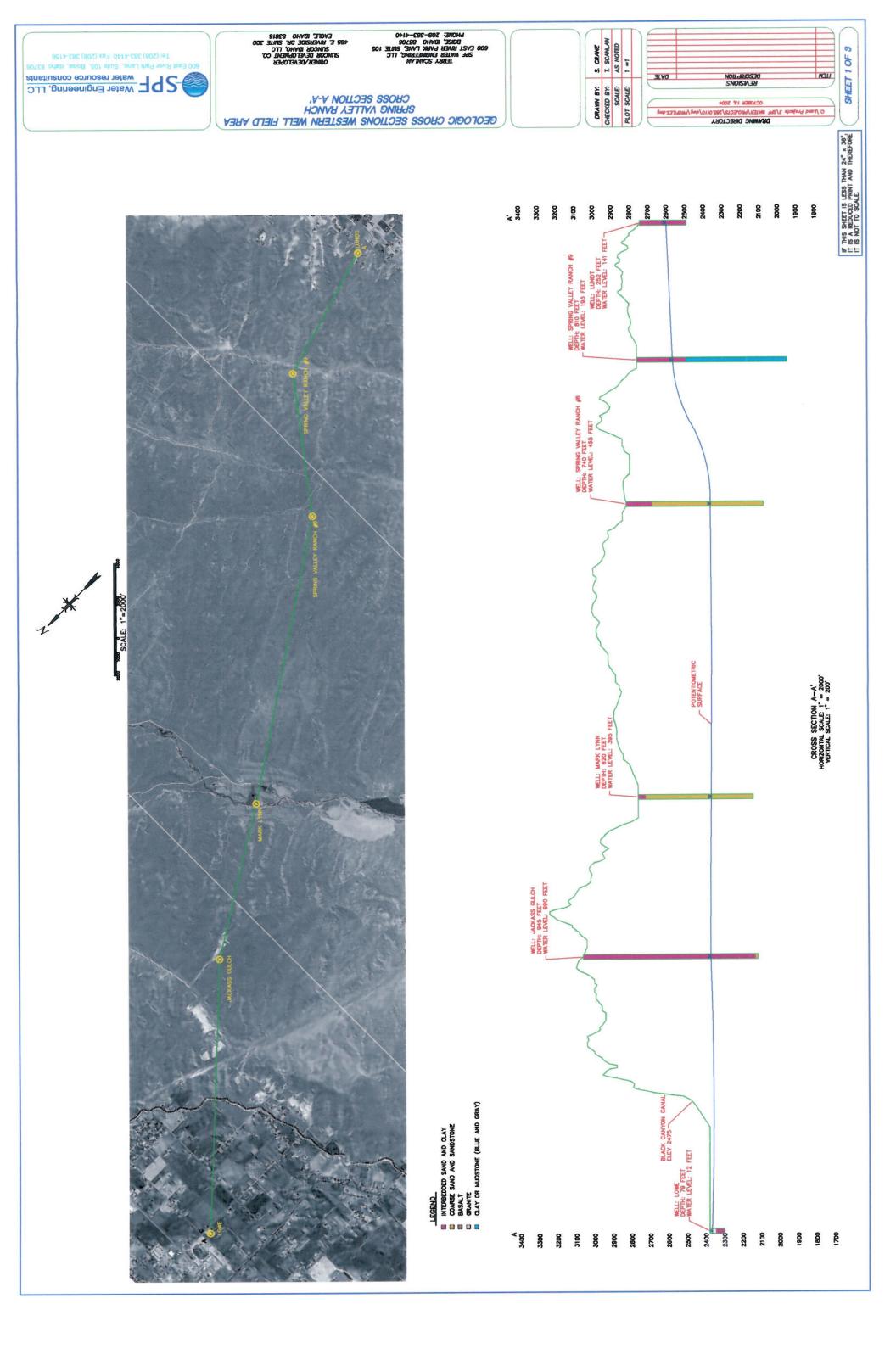
- Burnham, W.L. and Wood, S.H., 1992. Geologic Map of the Boise South Quadrangle, Ada County, Idaho. Preprint in review for the Idaho Geological Survey Technical Report Series, April 22, 1992.
- Scanlan Engineering, April, 2003. Groundwater Exploration and Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho, prepared for SunCor Development Company.
- Scanlan, T.M., July 11, 2002. Phase I Groundwater Exploration Program Spring Valley Ranch Project, Letter report from Scanlan Engineering to SunCor Development Company.
- Squires, E., Wood, S.H. and Osiensky, J.L., 1992. Hydrogeologic Framework of the Boise Aquifer System, Ada County, Idaho, Research Technical Completion Report, Idaho Water Resources Research Institute, University of Idaho. 114 pp.
- Urban, S.M., 2004. Water Budget for the Treasure Valley Aquifer System for the Years 1996 and 2000, Idaho Department of Water Resources.
- Urban, S.M. and Petrich, C.R., 1998. 1996 Water Budget for the Treasure Valley Aquifer System, Idaho Department of Water Resources Research Report.

#### Document Info:

Filename: WillowCreek-BigGulchReport

File Size: 17667584 bytes Last edited: 5/3/2005

Pages: 29



PHONE: SOB-383-4140
BOISE IDANO 83706
600 EAST WIVER PARK LANE: SUITE 106
SPF WATER BOUREEBUG, LLC
SPF WATER BOUREEBUG, LLC

CHOSS SECTION B-B' SPRING VALLEY RANCH GEOLOGIC CROSS SECTIONS WESTERN WELL FIELD AREA CHECKED BY: S. CRAME
CHECKED BY: T. SCANLAN
SCALE: AS NOTED
PLOT SCALE: 1 =1

C / roug publicia 2/204. INVIDIA/MOCECIA/SECOLO/908/MOLECE/908

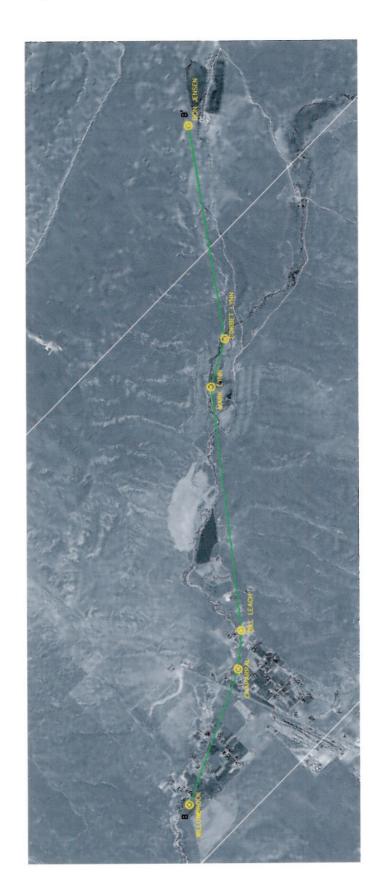
OCHORIC DISCONS

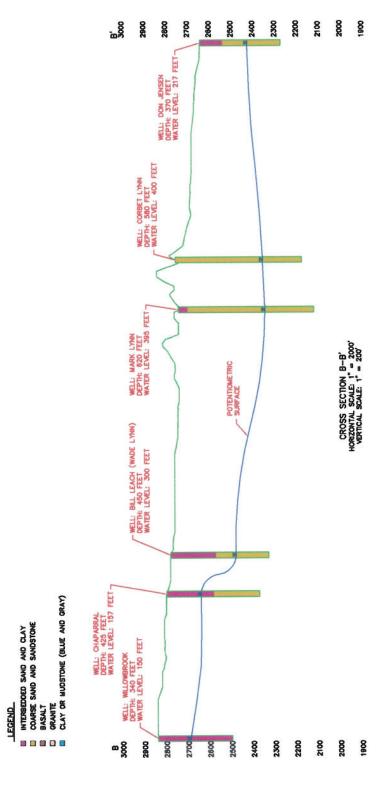
OCHORIC DISCONS

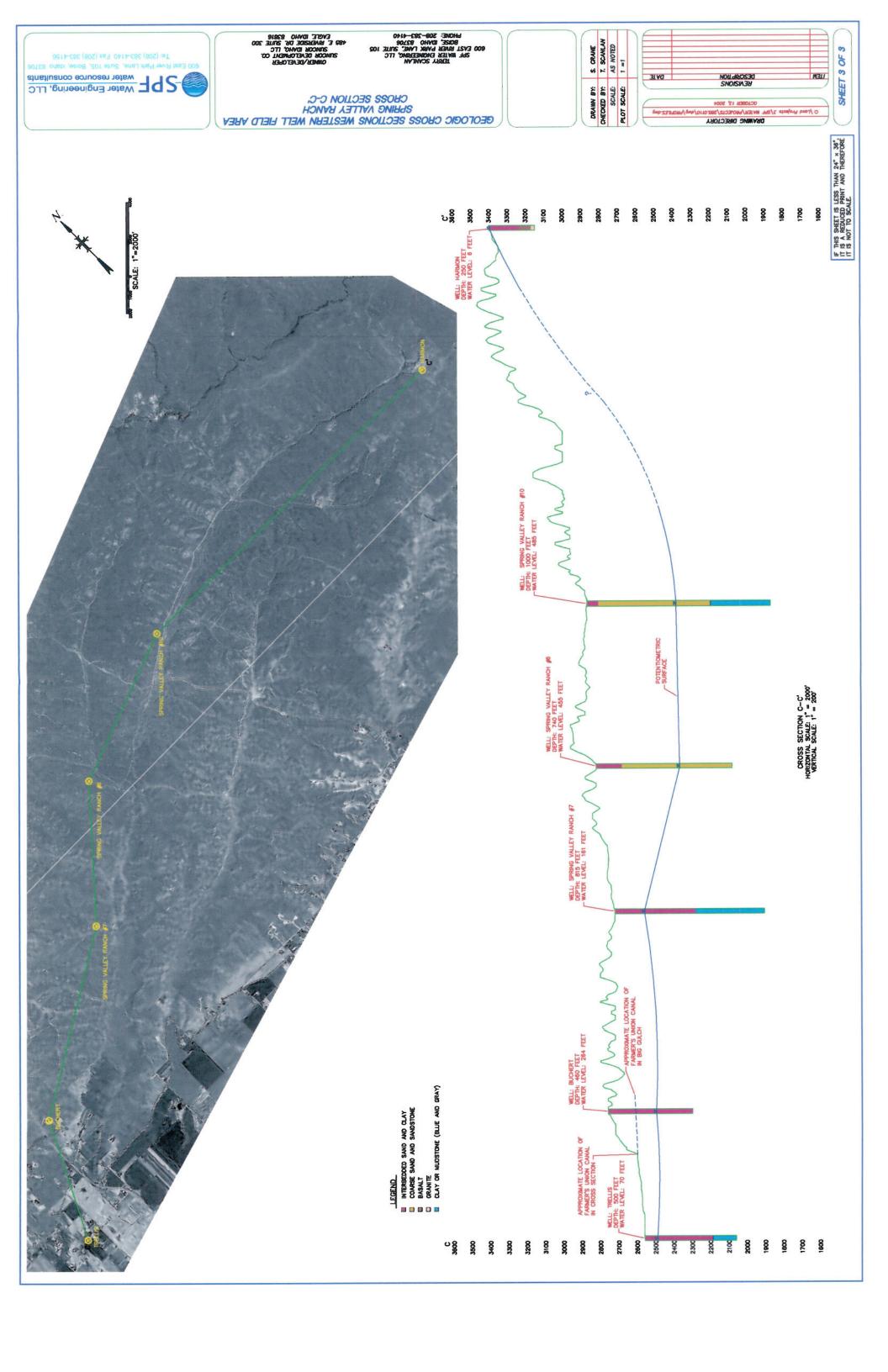
ON THE CONTROL OF THE CONTROLOGY OF THE

IF THIS SHEET IS LESS THAN 24" x 36", IT IS A REDUCED PRINT AND THEREFORE IT IS NOT TO SCALE,









# Appendix A Supplementary Data Spring Valley Ranch Exploration Well SVR 6

Form 6/02	238-

# IDAHO DEPARTMENT OF WATER RESOURCE

				Offic	e Use U			, ,
ES			Well I	D No.	8098	103		LeE
			Inspe	cted by				
			Twp_	R	ge	Sec		
			2-34-4 <del>-</del> 800-			1/4		
2117	ESTS:		Lat:	: :			:	
P		☐ Bailer	X Ai		Flowing A			
ld gal./		Drawdow		Pumpin		Tir	ne -	
		Diawoowi	-	rumpin	g Lover			
75	<b>.</b>					10 THE	M	>
			-				_	
		Ound	,			L		
Temp.		80			Botto	n hole tem	)	
Quality	test or	comments:	Iro	<u>5</u>		4 7.5		
YOU		2			nth first Wa	iter Encoun	ter £	590'
		OG: (Descri	he rens					nter
HOL	OGIC						wa	T
From	To	Remarks: L	ithology	, Water Qu	ality & Tem	perature	Y	N
<u></u>	10	001	- : A					
0	10	Sandy	_					
	96	yan ala	7					-
96	105							
105	134	blue cl	ay	72				-
	140		- 1					
	195	Dea cra	7 4	& Alas	,			
				1 3 1	Dans			
45	300	Learnes S	somo		Tite			$\vdash$
360	367	LOOUSES	wind	J CKO	4 FIR	e		$\vdash$
		Pe	ag	ravel	<u> </u>			
367	505	Fine & C						
	540							
	590	Dag Cor	10	1.4/10	van Co	1-100	au	-
		peagra	wex	w ra	rge su	ma yu	W	-
	595						Х	+
	605	Finer 4	lan s	sand				
005	620	Quartz	San	d			X	
	640	Finer S	and				X	
		augstz					X	
		quartz.			ma Ado	arand		1 1
100	1/0	quest 2	d	4 5 30	reput	Ch cour	X	
000	660	gravel	2 80	ONZ :	Samol		X	+
	670	1019 S						++
670	680	big so	and				X	
680	685	big Sc	and					
	690						X	
	130	bia So	- al			1895050	X	
						**************************************	~	+
120	740	big so	Mal			- Statement - State	<b>X</b>	1 1
_	1.							+
Du	of a	heaving	SOM	d - a	Mixto	40		1
nd s	cen	ment wh	BBE	aced	from	730'	6	740
			- 1-					
				R	ECF	IVE	D	
							Ī	+
	-				MAD 4	0 2001	+	+
_	-				MAK i	9 2004	-	+-
		L	17	<del>~ ' '</del>	ATED A	ECOLIDAT	-	1
pleted	Depth		130	) v	WESTER	SOURGE N REGIO	e sur	able)
		01.26	-124		Completed	00	17×	24
				4.	Jompieteu	921		-
RILLI	ER'S C	ERTIFICATIO	NC					
ertify	that all n	ninimum well o	onstruc	tion standa	rds were c	omplied wit	h at t	he
	was rem		_	-		123		
	A		1)	ے _ د	1 min	0.	11	C7
any N	ame/	damson	17	IMD 5	שונו	li Mign N	0. 4	2/
	0	/ (						
pal Dg	ller A	ave o	ea	amo	Bru Da	ate _ 3. /	D ,	74
		7-	/.					
or Op	erator II	Paul		aloum?	DI DI	ate 3.19	57	74
2					1200			
ator I _		Principal Dril	lascad	Die Onner		ate		
		Funcipal Dul	ier and	mio Unerat	o medilire	CI.		

WELL DRILLER'S REPORT	•				Inspected		C	-	
1. WELL TAG NO. D						Rge 41/4 _		-	
DRILLING PERMIT NO.	10 10	e	ESTS:			: Long		:	
Water Right or Injection Well No.	12. 49	D P		☐ Bailer	X Air	☐ Flowing A			
O OWNED.	Y	ield gal./		Drawdov		Pumping Level	Tin	10	
2. OWNER: Name Spring Valley Development LC		179	·				6 he	ur	<u> </u>
Address 485 E. Ruerside Dr						0		-	
City EagleState Id Zip 8 3 (016)	Water	Temp		80	0	Botto	m hole temp	).	
3. LOCATION OF WELL by legal description:				comments:			11 7,5		
You must provide address or Lot, Blk, Sub. or Directions to well.			ns_			Depth first Wa	ater Encoun	ter S	590
Twp. 5 North X or South □ Roe. 1 East □ or West X					ribe repairs o	or abandonmen		Wat	
Rge. / East   or West X Sec. /3 , 1/4 SE 1/4 NW 1/4	Bore	From	То	Remarks:	Lithology Wa	ter Quality & Tem	perature	Y	N
Sec. 13 , 1/4 SE 1/4 NW 1/4 Gov't Lot County Advances 1/4 NW 1/4	Dia.								
Lat: : Long:	2	0	10	Sandy Van all					
Address of Well Site I mule Ste of Wallow Creek Rd	4	96	105	blue					
Big G- West Constitution to Hood or Landmark) City Eagle	8	105	134	blue					-
Lt Sub. Name	de	134		Han cle	24				
	Di	140	195	pea gro	rivel 9 6	lay		_	_
4. USE:	*	195	360	Ugray	sond	clay			
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation	4	360	367		sand I ea gra	clay lik	e	-	
☐ Thermal ☐ Injection ☐ Other	44	367	505		coarse				
5. TYPE OF WORK check all that apply (Replacement etc.)	ie			larger	Dea o	wavel			
New Well	И	540	590	peagr	auch w	large So	und ga	ar	2
6. DRILL METHOD:	"	590	595	QUAPIZ	- Dunde			Х	
X Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other	H		605		dan Sa	nol		~	
			640	Quartz Finer:				x	
7. SEALING PROCEDURES	0e			auartz		,		x	
Seal Material From To Weight / Volume Seal Placement Method  Bem-mult 0 05 3150 4 Over Dure	11					Somepaa	grave	X	
Bentonul 0 105 3150 to overbone	M	655	660	aravel	3 quar	tz sand	0	X	
Was drive shoe used? XY IN Shoe Depth(s) 738	lit	600	670	10ig S	sand	1919		10	-
Was drive shoe seal tested? ☐Y 💢N How?	l.		680					X	
8. CASING/LINER:	ir		685		sand			x	
Diameter From To Gauge Material Casing Liner Welded Threaded			130	big S				X	
8' +2 738' 250 Stal 50 = 50 =	1.	730					**************************************	X	
		_		. 1					_
		Du	a to	heaving	sond:	amixto	we of	1 0	1
Length of Headpipe Length of Tallpipe  Packer	30	mol '	e cer	nent W	hs plac	ed from	730'	0.	40
9. PERFORATIONS/SCREENS PACKER TYPE						RECE	IVE	D	
Perforation Method STAR PERF. 4 ROWS @ JOINT 90 PER	3	-	-			LAAD 4	0 0001		₽
Screen Type & Method of Installation Nove PPR ROW	-	+-	-			MAK_i	9 2004	-	$\vdash$
From To Slot Size Number Diameter Material Casing Liner	Co	⊥ mpleted	Depth	1	130'	WATERR	ESOURCE	Ssura	able)
580 600 1/4 360 8" 250 WALK 580 600 1/4 360 8" CASWEL &				01-20		MEDIER	N REGION		
580 600 1/4 360 B" CASWEL & GOO 620 1/4 360 B" S		te: Sta				Completed	<u> </u>		-
620-640 14 360 B" 3 X				ERTIFICATI		standards were o	omplied wit	h at th	10
Filter Material From To Weight / Volume Placement Method			was ren		~	, 1			
Continued on page 2	Com	pany N	ame	domso	n Pun	p & Dru	Li Mign No	4	57
44 OTATA WATER LEVEL OR APTECIAL PROCESS.				<u> </u>		mson	ate 3.1	5.0	DU
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE: 455_ft. below ground Artesian pressurelb.	and			1					
Depth flow encounteredtt. Describe access port or control devices:	Drille	er or Op	perator I	1200	re Molo	imson d	ate 3 11	ש כ	7
Shel plake	Ope	rator I_				D	ate		
	- 5		A Paris Selection	Principal Dr	filler and Rig (	Operator Require	ed.		

Form	238-7
6/02	

Form 238-7 IDAHO DEPARTMENT OF WATER RESC		Well ID No.	-
. WELL DRILLER'S REPORT		Inspected bySec	-
1. WELL TAG NO. D 0030892 MZ		1/4 1/4 1/4	
DRILLING PERMIT NO.	12. WELL TESTS:	Lat: : Long: : :	
Water Right or Injection Well No.	☐ Pump □ Bai		
2 OWNER: N		Drawdown Pumping Level Time	
2. OWNER: Name Spring Valley Develop ment LLC			
Address 495 F. Ruserside Dr			
City Fagle State Id Zip 83616			
A LOCATION OF WELL by Land decorated	Water Temp.	Bottom hole temp.	
LOCATION OF WELL by legal description: You must provide address or Lot, Blk, Sub. or Directions to well.	Water Quality test or comme	ents:	
Twp. 5 North C or South		Depth first Water Encounter	
Rge East  or West X	13. LITHOLOGIC LOG:	(Describe repairs or abandonment)	Vater
Sec. 13 1/4 SE 1/4 NW 1/4 Gov't Lot County 160 acres	Bore Dia. From To Rem	narks: Lithology, Water Quality & Temperature Y	N
	Usa.		
Lat: : Long: Address of Well Site I mule Sw of Willow Creek Rd			
Ria (Tallala			
(Give at least nume of road – Distance to Road or Landmark)		2 2 20 24	
Lt. Blk. Sub. Name			
4. USE:			4
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation			-
□Thermal □ Injection X Other test			-
5. TYPE OF WORK check all that apply (Replacement etc.)			-
New Well Modify Abandonment Other			+-
The control was strated in the design and the strategy of the			1
6. DRILL METHOD:			
Air Rotary Cable Mud Rotary Other			
7. SEALING PROCEDURES			
Seal Material From To Weight / Volume Seal Placement Method			
			-
Was drive shoe used?  Y N Shoe Depth(s)		-	+
Was drive shoe seal tested? \(\sigma\)Y \(\sigma\) How?			1
8. CASING/LINER:			
Diameter From To Gauge Material Casing Liner Welded Threaded			
Length of Headpipe Length of Tailpipe			
Packer LIY N Type			
· · · · · · · · · · · · · · · · · · ·	<del></del>		+
9. PERFORATIONS/SCREENS PACKER TYPE	-   -		-
Perforation Method STAR PERF. 4 ROWS & JOINT 90 DEPS Screen Type & Method of Installation PER ROW (360)	•		
Screen Type & Method of Installation PER Row (360)  From To Slot Size Number Diameter Material Casing Liner			
640 660 14 360 8" 250 WKL 8	Completed Depth	(Measo	urable)
660 680 1/4 360 8" CASWG BY	Date: Started	Completed	
680 700 1/4 360 8" -	14. DRILLER'S CERTIF	ICATION	
700-720 14 360 8" 3 X		m well construction standards were complied with at	the
Filter Material From To Weight / Volume Placement Method	time the rig was removed.	~	
720 - 730	Company Name	son Punio & Drilling Firm No. 4	157
	EX.	91	41
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	Principal Driller David		
tt. below ground Artesian pressureib.	Driller or Operator II	we Adamson Date 3.15.	04
Depth flow encounteredft. Describe access port or control devices;		NO. AND ADDRESS OF THE PARTY OF	
	Operator I	Date	
		ipal Driller and Rig Operator Required.	

Office Use Only

# Exploration Hole SVR 6E Spring Valley Ranch

Drilled by: Adamson Pump and Drilling. Logged by: C. Feast/Feast Geosciences, LLC Geophysical logs by: Not logged Fluid level when logged: n/a

Drilled Dates: Drilling Method: Air Rotary Borehole size: 8" (nom.) 0 - 740 ft.

Depth Drilled: 740 ft Depth Logged: n/a Static WL: ~ 445 ft. bgl Location: Ada County, Idaho T5N, R1W, SE1/4, NW1/4, Section 13 GL. Elevation: ~ 2820 ft. msl.

th (ft)	Geologic log from rotary cuttings	Symb. Log	Pt. Res (Ohms)	TI	Natural Gamma (CPS)		Well Construction
				No geophysic			
0	Top soil over clay, soft, plastic, coarse qtz. sand grains, buff					1 %	16" Overbore
10	yellow brown.						Overbore
20							10" casin
30		22222					
		F55555					
40							8", .250" steel cas
50							31001 Cas
60		33333					
VA-01							
70							Bentoniti
80							slurry
90	Silt, clayey, micaceous, medium gray.	899998					Bentonite slurry
100		665666				1	
110		188888					
110		888888					
120		888888					
130	Sand and gravel, coarse, subrounded qtz sand with fine to	- 1717777					
enen.	medium gravel, coarse gravel (1" minus) at numerous						
140	Color varies from brown to gray and occasional iron oxide clays as shown						
150	ciays as shown						
160		0.00					
160		0000					1 1
170							1 1
180							
190	Clayey weathered granite cobb	les					
200							1 1
						- 1	1 1
210							1 1
220						- 1	1 1
230							
240							
250						1	1 1
260						- 1	
200							1 1
270						1	1 1
280							1 1
							1 1
290							1 1
300		Iron oxide   clay   C   C   C   C   C   C   C   C   C					
310		1ron oxide clay 0.0000 0.0000 0.0000				- 1	
		E 6000					
320							
330							1 1
340							
350							
360							
370							
380							1 1
390	1						
400							
		\$131311111 <b>1</b>					1 1

# Exploration Hole SVR 6E Spring Valley Ranch

Drilled by: Adamson Pump and Drilling. Logged by: C. Feast/Feast Geosciences, LLC Geophysical logs by: Not logged Fluid level when logged: n/a Casing when logged: n/a Drilled Dates: Depth Drilled: 740 ft Location: Ada County, Idaho Drilling Method: Air Rotary Depth Logged: n/a T5N, R1W, SE1/4, NW1/4, Section 13 Borehole size: 8" (nom.) 0 - 740 ft. Static WL: ~ 445 ft. bgf GL. Elevation: ~ 2820 ft. msl. Depth (ft) Geologic log from rotary cuttings Symb. Log Pt. Res (Ohms) Natural Gamma (CPS) Well Construction No geophysical logs 420 430 440 SWL V 450 460 Iron oxide clay 470 480 490 500 510 000 520 530 540 Predominantly gray 550 iron increases, color predominantly light yellow-brown Iron oxide clay 560 3/8" perforations 570 580 590 600 610 620 630 640 650 670 680 690 700 710 720 730 740 Bottom of hole at 740 ft. 750

SVR6Ewelllog Page 2 of 2

Subj: Exploration Well No. 6 (Big Gulch) temperature survey

Date: 3/9/2004 5:46:34 PM Mountain Standard Time

From: TM SCANLAN

To: bob.taunton@suncoraz.com

CC: jerry.ellsworth@suncoraz.com, duane.black@suncoraz.com, cfeast@cableone.net

At the request of Idaho Department of Water Resources, Adamson conducted a temperature survey of Exploration Well No. 6 today. The results were surprising because the temperature decreased with depth as follows:

Depth (ft)	Temperature Degrees (F)
460	87.6
480	87.7
500	87.6
520	86.4
540	85.4
560	84.3
580	83.6
600	82.9
620	82.6
640	82.2
660	81.6
680	80.9
700	81.0
720	81.0
727	80.4

The test pump installation began this afternoon, and will be finished tomorrow. Apparently there is a delay in getting the generator for the test pump. Therefore, test puming will not occur until Friday or Monday.

## AQUIFER TEST DATA

Well No: Spring Valley Ranch, Test well SVR 6 Qave = 358 gpm

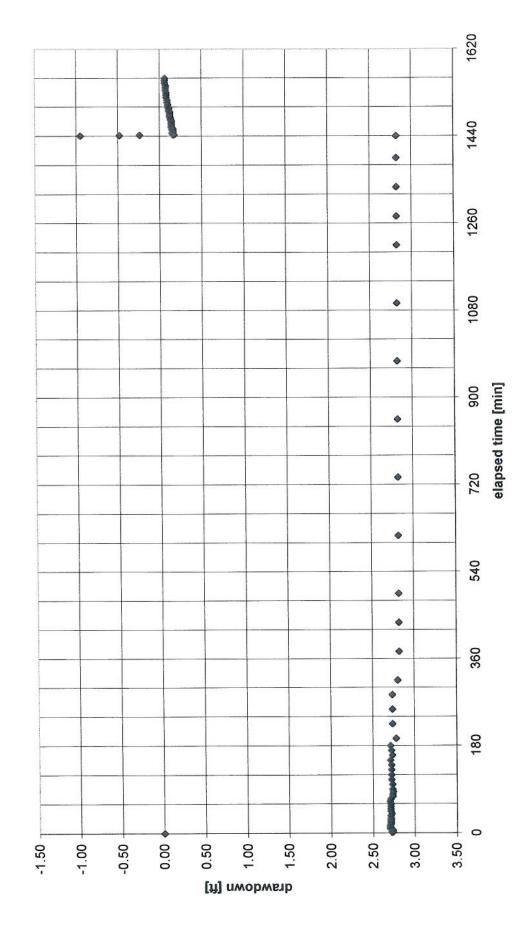
Test conducted by: SPF Water Engineering and Adamson Pump and Drilling Company
Flow measured by: McCrometer flow meter - totalizer

unip on. Siza	3/2004 11:4	5 Pum	p off: 3/24/2	2004 11:45						
29/27/200	ouesen I	t	ť	1			evel Data	In .	totalizer	Comments
Date	Time	[min]	[min]	t/t	Ref [ft]	Measure (in)	WL [ft]	Drawdown [ft]	[ft^3]	temperature data: F taken by spf, F-A taken by Adamso
3/23/2004	11:30	-			[14]	[,	452.18	119	80	T=84.3F-A, slightly cloudy
3/23/2004	11:45	0					452.18	0.00		
3/23/2004	11:46	1					454.90	2.72		
3/23/2004	11:47	2					454.91	2.73		
/23/2004	11:48	3					454.90	2.72		
3/23/2004	11:49	4					454.90	2.72		
3/23/2004	11:50	5				1 1	454.90	2.72		
3/23/2004	11:51	6				1 3	454.91	2.73		
3/23/2004	11:52	7					454.90	2.72		
3/23/2004	11:53	8				1	454.90	2.72		
/23/2004	11:54	9	l l			1	454.88	2.70		
/23/2004	11:55	10				1	454.89	2.71		T=81.3F/83.4F-A,ph=7.13,EC/SC=192.7/184.1, clear
/23/2004	11:57	12					454.88	2.70		The state of the s
/23/2004	11:59	14					454.88	2.70		
/23/2004	12:01	16	ē .			1	454.88	2.70		
3/23/2004	12:03	18				1	454.89	2.71		
						1				T-81 35/83 45 A ab=7 35 5C/SC=100 4/182 1
1/23/2004	12:05	20				1	454.89	2.71 2.71		T=81.3F/83.4F-A,ph=7.35,EC/SC=190.4/182.1
/23/2004	12:07	22					454.89	1 100 E		
/23/2004	12:09	24				1	454.89	2.71		1
3/23/2004	12:11	26					454.89	2.71	1400	T-91 15/92 65 A ph-7 49 50/90-190 7/491 7
3/23/2004	12:13	28					454.89	2.71	1480	T=81.1F/83.6F-A,ph=7.48,EC/SC=189.7/181.7
3/23/2004	12:15	30					454.89	2.71		T 04 FE 100 FE 4 1 7 F0 F0 100 - 400 F1400 0 - 1
3/23/2004	12:20	35				1	454.89	2.71	0000	T=81.5F/83.5F-A,ph=7.58,EC/SC=189.5/180.9, clear
3/23/2004	12:25	40				1	454.90	2.72	2200	T=81.3F/82.9F-A,ph=7.58,EC/SC=189.2/180.9
3/23/2004	12:30	45				1	454.89	2.71		T=81.3F/82.9F-A,ph=7.6,EC/SC=188.4/180.1
3/23/2004	12:35	50				1	454.89	2.71		
3/23/2004	12:40	55					454.89	2.71	2920	T=81.3F/82.8F-A,ph=7.6,EC/SC=188.4/180.2
3/23/2004	12:45	60					454.89	2.71		T=81.1F/83F-A,ph=7.64,EC/SC=188.4/180.3
3/23/2004	12:50	65				1	454.88	2.70	20222	T=81.5F/83.1F-A,ph=7.67,EC/SC=188.4/180.1
3/23/2004	12:55	70		1		1	454.89	2.71	3630	T=81.5F/83.1F-A,ph=7.68,EC/SC=188.6/180.1, clear
3/23/2004	13:00	75				1	454.91	2.73		T=81.1F/82.8F-A,ph=7.67,EC/SC=188.1/180.1
3/23/2004	13:05	80					454.91	2.73	2020222	T=81.1F/82.4F-A,ph=7.68,EC/SC=188.6/180.6
3/23/2004	13:10	85					454.92	2.74	4350	T=81.1F/82.3F-A,ph=7.65,EC/SC=188.5/180.5
3/23/2004	13:15	90					454.91	2.73		
3/23/2004	13:25	100		1			454.91	2.73		T=81.1F/82.7F-A,ph=7.62,EC/SC=188.9/180.9, clear
3/23/2004	13:35	110		1			454.90	2.72	5790	
3/23/2004	13:45	120			1		454.90	2.72		T=81.1F/82.7F-A,ph=7.74,EC/SC=189.4/181.4
3/23/2004	13:55	130		1		1	454.90	2.72	1	
3/23/2004	14:05	140				1	454.90	2.72	7220	T=81.1F/82.4F-A,ph=7.62,EC/SC=190/182.1
3/23/2004	14:15	150					454.89	2.71		T=81.1F/82.3F-A,ph=7.64,EC/SC=190/181.7
3/23/2004	14:25	160					454.91	2.73	1	T=81.3F/81.5F-A,ph=7.65,EC/SC=190.5/182.1
3/23/2004	14:35	170			entan		454.90	2.72	8660	T=81.1F/81.9F-A,ph=7.67,EC/SC=190.2/182.2
3/23/2004	14:45	180		-551125-555			454.89	2.71	9410	T=81.9F-A, Adamson Pump and Drilling measurements
3/23/2004	15:00	195					454.96	2.78	10830	T=82.6F-A
3/23/2004	15:30	225	1				454.92	2.74	12240	T=81.8F-A
3/23/2004	16:00	255	1	1			454.92	2.74	13660	T=81.4F-A
3/23/2004	16:30	285					454.92	2.74	15120	T=81.2F-A
3/23/2004	17:00	315				1	454.98	2.80	17880	T=81.9F-A
3/23/2004	18:00	375		1			455.00	2.82	20950	T=81.7F-A
3/23/2004	19:00	435					455.00	2.82	23740	T=81F-A
3/23/2004	20:00	495					455.00	2.82	29340	T=80.2F-A
3/23/2004	22:00	615	1				455.00	2.82	35330	T=81.1F-A
3/24/2004	0:00	735	1		1		455.00	2.82	41540	T=79.7F-A
3/24/2004	2:00	855	1	1	1		455.00	2.82	46890	T=81.2F-A
3/24/2004	4:00	975	1		1		455.00	2.82	52720	T=80.8F-A
3/24/2004	6:00	1095	1				455.00	2.82	58070	T=81.5F-A
3/24/2004	8:00	1215	1		1		455.00	2.82	60980	T=81.9F-A
3/24/2004	9:00	1275		1		1	455.00	2.82	63900	T=81.8F-A
3/24/2004	10:00	1335			1		455.00	2.82	66650	T=81.2F-A
		1335	-	<del> </del>	-	-	455.00	2.82	68910	T=80.9F/81.6F-A,ph=7.33,EC/SC=197.7/189.9, ph not c
3/24/2004	11:00								00910	
3/24/2004	11:45	1440	100		1		455.00	2.82		recovery
3/24/2004	11:46	1441	1	1441	1	1	451.23	-0.95		
3/24/2004	11:46:30	1441.5	1.5	961		1	451.70	-0.48	1	1
3/24/2004	11:47	1442	2	721		1	451.94	-0.24	1	
3/24/2004	11:47:30	1442.5	2.5	577	1		452.34	0.16	1	1
3/24/2004	11:48	1443	3	481		1	452.35	0.17		1
3/24/2004	11:48:30	1443.5	3.5	412		1	452.34	0.16	N.	
3/24/2004	11:49	1444	4	361			452.34	0.16		
3/24/2004	11:49:30	1444.5	4.5	321		1	452.34	0.16		
	11:50	1445	5	289	1	1	452.34	0.16	1	1

## AQUIFER TEST DATA

Well No: Spri					358 gpm					
Test conducte					mp and D	rilling Compa	any			
Flow measure	d by: McCr	ometer flow								
Water levels r	neasured by			iter level me	asure poir	nt: top of casi	ng	Average and the second		The second secon
MP elevation:	2 ft agl	Static WL:								
Pump on: 3/23	3/2004 11:4	5 Purr	p off: 3/24/2	2004 11:45						
	0	t	ť			Water Le	evel Data		totalizer	Comments
Date	Time	2000 No. 10	100000 500 01	t/t'	Ref	Measure	WL	Drawdown	[ft^3]	temperature data: F taken by spf, F-A taken by Adamson
		[min]	[min]		[ft]	[in]	[ft]	[ft]	[it 5]	temperature data. Francis by opi, Fritakos by Franciscos
3/24/2004	11:51	1446	6	241	77.33.5-53		452.34	0.16		
3/24/2004	11:52	1447	7	207			452.33	0.15		
3/24/2004	11:53	1448	8	181			452.34	0.16		
3/24/2004	11:54	1449	9	161			452.34	0.16		
3/24/2004	11:55	1450	10	145			452.34	0.16		
3/24/2004	11:56	1451	11	132			452.34	0.16		
3/24/2004	11:57	1452	12	121			452.34	0.16		
3/24/2004	11:58	1453	13	112			452.33	0.15		
3/24/2004	11:59	1454	14	104			452.33	0.15		
3/24/2004	12:00	1455	15	97			452.34	0.16		
3/24/2004	12:01	1456	16	91			452.33	0.15		
3/24/2004	12:02	1457	17	86			452.33	0.15		
3/24/2004	12:03	1458	18	81			452.32	0.14		
3/24/2004	12:04	1459	19	77			452.32	0.14		
3/24/2004	12:05	1460	20	73			452.32	0.14		
3/24/2004	12:07	1462	22	66			452.32	0.14		
3/24/2004	12:09	1464	24	61			452.32	0.14		
3/24/2004	12:11	1466	26	56			452.32	0.14		
3/24/2004	12:13	1468	28	52			452.32	0.14		
3/24/2004	12:15	1470	30	49			452.32	0.14		
3/24/2004	12:17	1472	32	46			452.32	0.14	12	
3/24/2004	12:19	1474	34	43			452.31	0.13		
3/24/2004	12:21	1476	36	41			452.31	0.13		
3/24/2004	12:23	1478	38	39			452.31	0.13		
3/24/2004	12:25	1480	40	37			452.30	0.12		
3/24/2004	12:27	1482	42	35			452.30	0.12		
3/24/2004	12:29	1484	44	34		Ď.	452.30	0.12		
3/24/2004	12:31	1486	46	32			452.30	0.12		
3/24/2004	12:33	1488	48	31			452.30	0.12		1
3/24/2004	12:35	1490	50	30			452.30	0.12		
3/24/2004	12:37	1492	52	29			452.29	0.11		
3/24/2004	12:39	1494	54	28		1	452.29	0.11		
3/24/2004	12:41	1496	56	27		1	452.29	0.11		
3/24/2004	12:43	1498	58	26		1	452.29	0.11		
3/24/2004	12:45	1500	60	25		1	452.28	0.10		
3/24/2004	12:50	1505	65	23		1	452.28	0.10		
3/24/2004	12:55	1510	70	22		1	452.27	0.09		
3/24/2004	13:00	1515	75	20			452.27	0.09	1	1
3/24/2004	13:05	1520	80	19		1	452.26	0.08		1
3/24/2004	13:10	1525	85	18		1	452.26	0.08		1
3/24/2004	13:15	1530	90	17		1	452.26	0.08		1
3/24/2004	13:20	1535	95	16		1	452.25	0.07		
3/24/2004	13:25	1540	100	15		1	452.25	0.07	1	
3/24/2004	13:30	1545	105	15			452.25	0.07		
3/24/2004	13:35	1550	110	14			452.24	0.06	1	
3/24/2004	13:40	1555	115	14			452.24	0.06	1	
3/24/2004	13:45	1560	120	13		1	452.24	0.06		
3/24/2004	13.43	1300	120	10			402.24	1 0.00		

Drawdown and Recovery Spring Valley Ranch Test Well SVR 6, Qave = 358 gpm Test date: March 23-24, 2004



10000 1000 elapsed time [min] 100 T = 264 \* Q / (delta s) = 264 \* 358 / (2.75 - 2.70) = 1890000 gpd/ft 9 3.00 0.00 1.00 0.50 1.50 2.00 2.50 drawdown [ft]

Time - Drawdown Spring Valley Ranch Test well SVR 6, Qave = 358 gpm Test date: March 23-24, 2004

10000 • 1000 0.15 0.18 100 t/t' = 3150000 gpd/ft T = 264 \* 358 / (0.18 - 0.04) = 675000 gpd/ft = 264 \* 358 / (0.18 - 0.15) T = 264 \* Q / (delta s) 10 0.04 0.40 -0.60 -0.40 0.00 0.20 -0.80 -0.20 -1.20 -1.00 drawdown [ft]

Time - Recovery Spring Valley Ranch Test well SVR 6 Test date: March 23-24, 2004

# Analytical Laboratories, Inc. 1804 N. 33rd Street

Boise, Idaho 83703 Phone (208) 342-5515 http://www.analyticallaboratories.com

> Attn: TERRY SCANLAN SCANLAN ENGINEERING 600 E RIVER PARK LN STE 105 BOISE, ID 83706

Time of Collection:

16:00

Date of Collection:

3/16/2004

Date Received:

3/17/2004

Report Date:

3/31/2004

Collected By:

M MOORE

Submitted By:

M MOORE

Source of Sample:

BIG GULCH#8-

Exploration well 6 (site w8)

PWS:

# Laboratory Analysis Report

Sample Number: 0407816

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Antimony Furnace	<	0.005	mg/L	0.005	SM 3113 B	3/24/2004	DMB
Arsenic Furnace		0.067	mg/L	0.003	SM 3113 B	3/19/2004	DMB
Barium, Ba	<	0.05	mg/L	0.05	EPA 200.7	3/19/2004	JH
Beryllium Furnace	<	0.0005	mg/L	0.0005	SM 3113 B	3/27/2004	DMB
Cadmium Furnace	<	0.0005	mg/L	0.0005	SM 3113 B	3/31/2004	DMB
Calcium, Ca		9.71	mg/L	0.10	EPA 200.7	3/20/2004	JH
Chromium Furnace	<	0.002	mg/L	0.002	SM 3113 B	3/23/2004	DMB
Iron, Fe		0.09	mg/L	0.05	EPA 200.7	3/18/2004	JH
Lead Furnace	<	0.005	mg/L	0.005	SM 3113 B	3/22/2004	DMB
Magnesium, Mg		0.69	mg/L	0.10	EPA 200.7	3/20/2004	JH
Manganese, Mn	<	0.05	mg/L	0.05	EPA 200.7	3/18/2004	JH
Mercury, Hg	<	0.0002	mg/L	0.0002	EPA 245.1	3/24/2004	SS
Molybdenum, Mo	<	0.05	mg/L	0.05	EPA 200.7	3/31/2004	JH
Nickel, Ni	<	0.02	mg/L	0.02	EPA 200.7	3/22/2004	JH
Potassium, K		1.5	mg/L	0.5	EPA 200.7	3/20/2004	JH
Selenium Furnace	<	0.005	mg/L	0.005	SM 3113 B	3/22/2004	DMB
Silica		36.2	mg/L	0.3	EPA 200.7	3/31/2004	JH
Sodium, Na		27.8	mg/L	0.10	EPA 200.7	3/20/2004	JH
Thallium Furnace	<	0.002	mg/L	0.002	SM 3113 B	3/28/2004	DMB
Vanadium, V	<	0.05	mg/L	0.05	EPA 200.7	3/31/2004	JH

MCL = Maximum Contamination Level

MDL = Method/Minimum Detection Limit UR = Unregulated

# Laboratory Analysis Report

Sample Number: 0407816

Test Requested	MCL		Analysis Result	Units	MDL	Method	Date Completed	Analyst
VII								
Nitrate (as N)			1.09	mg/L	0.20	EPA 300.0	3/18/2004	WW
Ammonia Direct (as N)			0.13	mg/L	0.04	EPA 350.1	3/22/2004	WW
Nitrite (as N)			0.02	mg/L	0.01	EPA 353.2	3/16/2004	ARR
Total Phosphate (as P)		<	0.05	mg/L	0.05	EPA 365.4	3/23/2004	KDH
Alkalinity			58.8	mg/L Ca		EPA 310.1	3/25/2004	ARR
Bicarbonate			58.8	mg/L		SM 2320	3/25/2004	ARR
Chloride, Cl			5	mg/L	1	EPA 300.0	3/18/2004	ww
Fluoride, F			0.95	mg/L	0.10	EPA 300.0	3/22/2004	ww
Hardness		<	5.0	mg/L	5.0	SM 2340	3/19/2004	ARR
Sulfate, SO4			13	mg/L	1	EPA 300.0	3/18/2004	ww
Sulfide, Dissolved (as H2S)			< 0.05	mg/L	0.05	SM 4500-S2 D	3/18/2004	DLR
Total Dissolved Solids			98	mg/L	25	EPA 160.1	3/20/2004	CS
Total Suspended Solids			<3	mg/L	3	EPA 160.2	3/19/2004	CS

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit UR = Unregulated

Page 2 of 2 Milar n. 9 Very

LAB FEDERAL ID#: ID00020	#: ID0002	0	LAB SAMPLE #;	0407816	
DATE LAB REC'D SAMPLE:	SAMPLE:	3/17/2004	DATE REPORTED BY LAB:	D BY LAB:	3/31/2004
COMPLIANCE SAMPLE		ON S	YES NO REPLACEMENT SAMPLE	SAMPLE	
COLLECTION DATE:	TE:	3/16/2004	COLLECTION TIME: (24 hour clock)	ME:	16:00
SAMPLE TYPE:	CO-confirmation DU-duplicate	noi	RP-repeat SP-special	Other	
PWS#:		PWS NAME:	PWS NAME: SCANLAN ENGINEERING	SINEERING	The second secon
SAMPLING POINT/LOCATION: BIG GULCH #8	CATION:	1	TAG #/FACILITY ID:		
COLLECTOR'S NAME: M MOORE	AME: M MOO	RE	CONTACT	CONTACT PHONE # (208) 383-4140	383-4140



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

# PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT:

			Phase II								Phase V				
FRDS	Contaminant Name	Result*	Method	MCL*	* MDL*	Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	WDL*	Analysis Date	Analyst
1010	Barium	ND	EPA 200.7 2	2	0.05	3/19/2004	H	1085	Thallium	S	SM 3113 B 0.002 0.002	0.002	0.002	3/28/2004	DMB
1015	Cadmium	N	SM 3113 B	0.005	0.005 0.0005	3/31/2004	DMB	1075	Beryllium	N N	SM 3113 B	0.004	0.0005	3/27/2004	DMB
1020	Chromium	N	SM 3113 B 0.1	0.1	0.002	3/23/2004	DMB	1074	Antimony	Q	SM 3113 B	900.0	0.005	3/24/2004	DMB
1035	Mercury	Q	EPA 245.1 0.002	0.002	0.0002	3/24/2004	SS	1036	Nickel	Q	EPA 200.7 n/a	n/a	0.02	3/22/2004	폭
1038	Ttl(N02/N03)	1		10							Other IOCs	IOCs			
1040	Nitrate	1.09	EPA 300.0	10	0.2	3/18/2004	WW	1052	Sodium	27.8	EPA 200.7	n/a	0.1	3/20/2004	H
1041	Nitrite	0.02	EPA 353.2	1.0	0.01	3/16/2004	ARR	1025	Fluoride	0.95	EPA 300.0	4.0	0.1	3/22/2004	WW
1045	Selenium	QN	SM 3113 B	0.05	0.005	3/22/2004	DMB	1005	Arsenic	0.067	SM 3113 B	0.05	0.003	3/19/2004	DMB
1024	Cyanide	1		0.2											
							Seconda	Secondary IOCs (optional)	optional)						
1050	Silver	-		0.1				2905	Surfactants	1					
1049	Silica, As SiO2	ı						1997	Langlier Index	ļ					
1042	Potassium	1.5	EPA 200.7		0.5	3/20/2004	_	1930	Dissolved Solids	86	EPA 160.1	200	25	3/20/2004	CS
1032	Manganese	ON	EPA 200.7	0.05	0.05	3/18/2004	=	1927	Alkalinity as CaC03	58.8	EPA 310.1			3/25/2004	ARR
1031	Magnesium	69.0	EPA 200.7		1.0	3/20/2004	녹	1926	Conductivity uS/cm						
1028	Iron	0.09	EPA 200.7	0.3	0.05	3/18/2004	_	1925	Hd	1		6.5-8.			
1027	Hydrogen Sulfide	QN	SM 4500-S		0.05	3/18/2004	DLR	1920	Odor (Threshold #)	:		က			
1022	Copper	ı		1.0				1915	Hardness as CaC03	QN	SM 2340		5	3/19/2004	ARR
1017	Chloride	5	EPA 300.0	250	-	3/18/2004	ww	1905	Color	ı		15c.u.			
1016	Calcium	9.71	EPA 200.7		0.1	3/20/2004	푸	1095	Zinc	1		2			
1003	Ammonia as N	0.13	EPA 350.1		0.04	3/22/2004	WW	1055	Sulfate	13	EPA 300.0	250	-	3/18/2004	WW
1002	Aluminum	1		0.05-											

SCANLAN ENGINEERING 600 E RIVER PARK LN STE 105 TERRY SCANLAN BOISE, ID, 83706

ND = Not detected within sensitivity of instrument \*Reported in mg/L unless otherwise noted

MDL = Method detection limit --- = No analysis performed

Michael M. Werrer 4/5/3004 Signature of Laboratory Supervisor



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

# Laboratory Analysis Report

Sample Number: 0407817

Collected By: M MOORE
Submitted By: M MOORE

Source of Sample:

BIG GULCH #8

SUR 6

Attn: TERRY SCANLAN SCANLAN ENGINEERING 600 E RIVER PARK LN STE 105 BOISE, ID 83706

Time of Collection:

16:00

Date of Collection:

3/16/2004

Date Received:

3/17/2004

Report Date:

4/14/2004

PWS:

ELI-TESTING PERFORMED AT ENERGY LABORATORIES, INC. RESULTS RECEIVED 04/13/04. \*ND=NONE DETECTED @ 0.2 pCi/L.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Uranium-Total		3	pCi/L	0.2	EPA 908.1	3/26/2004	ELI

Midael 11.11600.

Lab Federal ID#:	WY00002	WY00002   Lab Sample 0407817	
Date Lab Rec'd Sample:		3/17/2004 Date Reported by Lab:	04/02/04
Compliance Sample:	Yes No	Compliance Sample:   X   Yes   No   Replacement Sample	
Collection Date:	3/16/2004	3/16/2004 Time Collected:	16:00
Sample Type:	CO-confirmation DU-duplicate	RP-repeat Other	
PWS#:	PWS Name: 8	PWS Name: SCANLAN ENGINEERING	
Sampling Point/Location	BIG GULCH #8	Tag # / Facility ID:	A Company of the Comp
Collector's Name:	SVRG	Contact Phone #: (208)342-5515	



Phone (208) 342-5515 1804 N. 33rd Street Boise, Idaho 83703

# PUBLIC DRINKING WATER SYSTEM RADIOLOGICAL ANALYSIS REPORT

	CONTAMINANT	Result ug/L	Result pCi/L	MCL	Analysis Date	Analyst	Result ug/L Result pCi/L MCL Analysis Analyst Method Date
4002	Gross Alpha Activity (includes Radium and Uranium)		1				
4006	Uranium (measure if gross alpha exceeds 15 pCi/L; activity = 1.0 x concentration ug/L	ε	က	20	3/26/2004	冒	EPA 908.1
4000	Adjusted Gross Alpha (Subtract Uranium activity level from Gross Alpha Activity above)		1				
4020	Radium-226 (Required if Alpha activity is greater than 5pCi/L.)		1	-92 ->>>			
4030	Radium-228 (measure if radium 226 exceeds 3 pCi/L)		1				
4010	Total Measured Radium (Sum of Ra-226 and Ra-228)		1				
4100	Beta/Photon Activity (Measure major constituents if activity exceeds 50 pCt/L)		1				

ND = Not detected within sensitivity of instrument -- = No analysis performed for this contaminant

ELI-TESTING PERFORMED AT ENERGY LABORATORIES, INC. RESULTS RECEIVED 04/13/04. \*\*ND=NONE DETECTED @ 0.2 pCi/l.

Lab Supervisor's Signature

ö



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

# Laboratory Analysis Report

Sample Number: 0405853

Attn: TERRY SCANLAN SCANLAN ENGINEERING 600 E RIVER PARK LA STE 105

BOISE, ID 83706

Time of Collection:

16:00

Date of Collection:

2/26/2004

Date Received: Report Date: 2/26/2004 3/1/2004

Source of Sample:

BIG GULCH WELL #6

Collected By: T SCANLAN

Submitted By: T SCANLAN

(Air lift Sample)

PWS:

# SAMPLE ROVD IN MICROBIOLOGICAL TESTING BOTTLES RINSED TO REMOVE SODIUM THIOSULFATE PRESERVATIVE

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Arsenic Furnace		0.023	mg/L	0 003	SM 3113 B	2/29/2004	DMB
Fluoride, F		1 09	mg/L	0.10	EPA 300.0	2/27/2004	ww

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit UR = Unregulated If you have any questions about this report, or any future analytical needs, please contact. Michael Moore

Thank you for choosing Analytical Laboratories for your testing needs

Well # 6E

Printed 12/30/2003 Drilling Permit No. 809803 Well Tag No. 00030892 Well ID # 380535 Water Right No. Receipt # Approved Date 12/22/2003

# STATE OF IDAHO DEPARTMENT OF WATER RESOURCES DRILLING PERMIT

Relationship: Applicant

**广泛社会中央社会的企业,不是企业的企业的企业,并且企业的企业的企业。** 

Phone. (208)939-0343

Nama:

SPRING VALLEY DEVELOPMENT LLC

Address

485 EAST RIVERSIDE DR

**EAGLE ID 83618** 

Proposed Well Location: Township 05N, Range 01W, Section 13, SE, NW

COUNTY ADA

Street Address of Well Site: 1 MILE SW OF WILLOW CREEK RD BIG GULCH

EAGLE ID

Proposed Use of Well:

Test

Well Construction Information:

New Well

9. Proposed Surface Diameter: 8 inches. Proposed Depth 800 Feet

Anticipated Bottom Hole Temperature: 855 and less

Construction Start Data: Dec 22 2003

Anticipated Well Drilling Company: ADAMSON PUMP & DRILLING (No. 467)

Applicant's Signature: See original Apl. Date 12/14/03

Well ID # 380535

# Well Tag No. D0030892

# ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Monday, December 22, 2003.

- 1. This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.
- 2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft. from any drainfield and 50 ft. from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft. from any drainfield or septic tank.
- 3. The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.
- 4. Approval of this drilling permit does not authorize trespass on the land of enother party.
- 5. This permit does not constitute other local, county, state or federal approvais that may be required for construction of a well.
- 6. This drilling permit does not represent a right to divert and use the water of the State of Idaho. If the well being drilled is associated with approved water rights(s) use of the well must comply with conditions of said water right(s).
- 7. If a bottom hole temperature of 85 Degrees F (29.44 oC) or greater is encountered, well construction shall cause and the well driller and the well owner shall contact the Department of Water Resources immediately.
- 8. Idaho Code, S 55-2201 55-2210 requires the applicant and/or its contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line " Number for this location is 1-800-342-1585
- 9. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.
- 10. This drilling permit has been approved for construction or drilling of an exploratory well intended to be used for collecting geologic, hydrologic or water quality data.
- 11. No water shall be produced from this well or any fluid injected into this well without specific written authorization from the Department.
- 12. Any surface casing installed in this well shall not exceed 8 inches nominal diameter.
- 13. All casing strings installed in this well shall be sealed their entire length with approved seal material and by positive meens of placement unless otherwise authorized by this drilling permit.
- 14. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal material and placement methods, casing schedules and specifications shall be submitted for review by the department and attached to this drilling permit prior to the start of construction.
- 15. No casing installed in this well shall be drilled and driven through multiple aquiters, unless it is completely removed and the borehole is properly scaled or the casing is perforated at appropriate intervals and pressure ground with approved grout. Drilling and driving casing may be allowed above the water table or where multiple aquifers are

。 《大学》中,《大学》(1985年),《大学》(1985年),《大学》(1985年),《大学》(1985年),《大学》(1985年),《大学》(1985年),《大学》(1985年),《大学》(1985年),《大学》(198 Well ID # 380535

3043

not encountered provided that the casing is sealed as required by administrative rules.

- 16. This well shall be properly plugged in accordance with a plan approved by the department at least 30 days prior to the expiration of the bond.
- 17. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to the expiration of the bond, the Director may commerce action to attach the bond and hire a licensed driller to properly plug the
- 18. Drilling of this well shall not commence until the Department has received a document from the surety company or bank stating that the bond is in full force and effect and the Department has determined the amount of the bond is sufficient.
- 19. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of this well. The bond anali remain in effect and accessible by the Director until this well is plugged. The bond amount for this well shall be at least \$7200

Signature of Authorized Dept. Representative

Sr. WR Agent

# Appendix B Supplementary Data Spring Valley Ranch Exploration Well SVR 7



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

Attn: TERRY SCANLAN, P.E., P.G. S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105 BOISE, ID 83706

Time of Collection:

12:45

Date of Collection:

4/21/2004

Date Received:

4/22/2004

Report Date:

5/25/2004

PWS:

Collected By:

Submitted By:

Source of Sample: SPRING VALLEY RANCH #7

C FEAST

C FEAST

# Laboratory Analysis Report

Sample Number: 0412351

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Antimony Furnace	0.006	< 0.005	mg/L	0.005	SM 3113 B	5/13/2004	DMB
Arsenic Furnace	0.05	< 0.005	mg/L	0.005	SM 3113 B	4/29/2004	JH
Barium, Ba	2	< 0.05	mg/L	0.05	EPA 200.7	4/27/2004	ЛН
Beryllium Furnace	0.004	< 0.0005	mg/L	0.0005	SM 3113 B	5/10/2004	DMB
Calcium, Ca	UR	29.1	mg/L	0.10	EPA 200.7	4/23/2004	JH
Chromium Furnace	0.1	< 0.002	mg/L	0.002	SM 3113 B	5/6/2004	DMB
Iron, Fe	UR	0.11	mg/L	0.05	EPA 200.7	4/26/2004	JН
Magnesium, Mg	UR	8.19	mg/L	0.10	EPA 200.7	4/23/2004	JH
Manganese, Mn	UR	<0.05	mg/L	0.05	EPA 200.7	4/26/2004	JH
Mercury, Hg	0.002	< 0.0002	mg/L	0.0002	EPA 245.1	4/29/2004	SS
Nickel, Ni	UR	<0.02	mg/L	0.02	EPA 200.7	4/26/2004	JH
Potassium, K	UR	2.0	mg/L	0.5	EPA 200.7	4/23/2004	JH
Sodium, Na	UR	22.9	mg/L	0.10	EPA 200.7	4/23/2004	JH
Thallium Fumace	0.002	< 0.002	mg/L	0.002	SM 3113 B	5/10/2004	DMB
Cadmium Fumace	0.005	< 0.0005	mg/L	0.0005	SM 3113 B	5/22/2004	DMB
Ammonia Direct (as N)	UR	< 0.04	mg/L	0.04	EPA 350.1	4/28/2004	ww

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit
UR = Unregulated

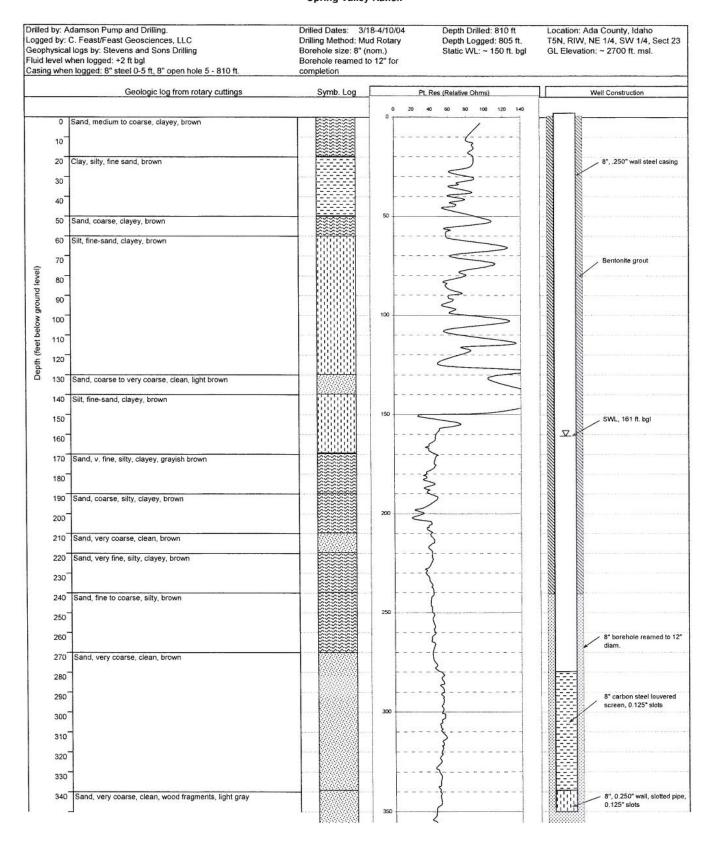
Form	238-7
6/02	

# IDAHO D

DEPARTMENT OF WATER RESOURCES	Well ID No. 8 1150 /
WELL DRILLER'S REPORT の3/062	Twp RgeSec
	lat lange

WELL DHILLEN S NEPONI				Twp RgeSec
1. WELL TAG NO. D				1/4 1/4 1/4
DRILLING PERMIT NO.				Lat: : Long: : :
Water Right or Injection Well No.	12. W	ELLT		The state of the s
Trace right of injustice real real real real real real real rea		□ Pı		☐ Bailer ☐ Air ☐ Flowing Artesian
2. OWNER:	_	eid gal./r	THE RESERVE OF THE PERSON NAMED IN	Drawdown Pumping Level Time
Name Spring When Development LLC Address 485 E. Riversible Dr Suite 300	100	-2	20	Thous
Address 485 F. Riverside Dr Suite 300				
City Eagle State Tol Zip 83616				
Oily State 12 2p.	Water	Temp		73° Bottom hole temp.
3. LOCATION OF WELL by legal description:				comments: From ,5 PH 7.5
You must provide address or Lot, Blk, Sub. or Directions to well.	/	1000 H 1000 H 100		
	Ġ	rain	15	Depth first Water Encounter
				LOG: (Describe repairs or abandonment) Water
Rge East or West X	Bore			
Sec. 23 , 1/4 NE 1/4 Sw 1/4 Gov't Lot County A0 250 1/4 50 acres 1/4	Dia.	From	То	Remarks: Lithology, Water Quality & Temperature Y N
Gov't Lot fo arms following	12	0	3	top Soil & clay
Country Address  Lat: : : Long: : : : Willow  Address of Well Site Big Gulch Sw of Willow  Creek & City Fagle  (Give at and name of incid + Distance to Prival or Constructs)	1.	3	30	coarse Sand
Address of Well Site Deg Gruch Sw of Willow	-			
Creek Kd City tagle	1	30	55	Grown clay
(Give at Junst namn of road + Distance to Read or Lendmark)	A	55	60	sand
Lt Blk Sub. Name	4	60	70	Drown clay
	41	70	120	soft & hand clay layers
1 112	A	120	130	Sand & Clay
4. USE:	A	130	135	
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation				
☐ Thermal ☐ Injection ☐ Cother	1.	135	150	clay
• ==	84	150	190	
5. TYPE OF WORK check all that apply (Replacement etc.)	84	190	200	
New Well  Modify  Abandonment  Other	be .	200	20	clay w/sand
	4		280	
6. DRILL METHOD:	Į.		290	Coarse Sand
☐ Air Rotary ☐ Cable	di			
Security of the second of the		211	340	Coarse Sand
7. SEALING PROCEDURES	-	240	350	bluish coarse sand w/ some wood
Seal Material From To Weight / Volume Seal Placement Method	de	350	380	Coarse blue sand
30% GROW 815 380 - PROSSURE GROWN	. 4	380	440	coarse blue sand
	je			blue clay
30% GROUT 240 0 - PRESURE GROUT	11	47/1	215	blue clay
Was drive shoe used? LIY LIN Shoe Depth(s)		.,,,	0,0	base crang
Was drive shoe seal tested? TY TN How?	-	-	-	<del></del>
A SAAMAR MINE	-		-	
8. CASING/LINER:				RECEIVED
Diameter From To Gauge Material Casing Liner Welded Threaded				TOTIVED
8° +2 278 250 Sheet yo 1 15 1				APR 1 9 2004
				APR 19 2004
				Water
Length of Headpipe Length of Tailpipe	-		<b>†</b>	WATER RESOURCES WESTERN REGION
Packer DY N Type		-		WESTERN REGION
Tacker 1 1990		-	-	ļ <u>                               </u>
9. PERFORATIONS/SCREENS PACKER TYPE			ļ	
Perforation Method PFOE 8 "CASMY 10 FT		-	-	
Perforation Method PERF. 8" (45WG 10 FT				
Perforation Method PERF. 8" (ASWG 10 FT Screen Type & Method of Installation SHUTTER SCREEN 60 FT				
Perforation Method  Screen Type & Method of Installation SHUTTEL SCIED (6) FT  From To Slot Size Number Diameter Material Casing Liner	Cor	mpleted	Depth	350 (Measurable)
Perforation Method  Screen Type & Method of Installation SHUTTER SCREEN (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 240 18 May 8* Steel		mpleted		
Perforation Method  Screen Type & Method of Installation SHUTTEL SCLEED LOFT  From To Slot Size Number Diameter Material  280 240 /8 MMY 8" STEL   340 350 /8 60 8" STEL		mpleted		350 (Measurable) 31004 Completed 4.10.04
Perforation Method  Screen Type & Method of Installation SHUTTER SCREEN (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 240 18 May 8* Steel	Dat	te: Sta	rted	3110104 completed 4.10.04
Perforation Method  Screen Type & Method of Installation Sultrol Screen (ASWG 10 FT)  From To Slot Size Number Diameter Material Casing Liner  280 340 18 MWY 8" STEEL	Dat	te: Sta	rted	3110104 Completed 4.10.04
Perforation Method  Screen Type & Method of Installation Shuttel Scleen (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 340 18 MWY 8" STEEL	14. I	te: Sta	rted	CERTIFICATION  minimum well construction standards were complied with at the
Perforation Method Screen Type & Method of Installation Sultract Screen (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 340 /8 MWY 8 STEEL   10. FILTER PACK  Filter Material From To Weight / Volume Placement Method	14. I	te: Sta	rted ER'S C	CERTIFICATION  minimum well construction standards were complied with at the moved.
Perforation Method  Screen Type & Method of Installation Shuttel Scleen (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 340 18 MWY 8" STEEL	14. I I/We time	te: Sta	ER'S C	CERTIFICATION  minimum well construction standards were complied with at the
Perforation Method Screen Type & Method of Installation Sultract Screen (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 340 /8 MWY 8 STEEL   10. FILTER PACK  Filter Material From To Weight / Volume Placement Method	14. I I/We time	DRILLI Certify the rig	ER'S Contract all reverse remediates	CERTIFICATION  minimum well construction standards were complied with at the moved.
Perforation Method Screen Type & Method of Installation Sultract Screen (A) FT  From To Slot Size Number Diameter Material Casing Liner  280 340 /8 MWY 8 STEEL   10. FILTER PACK  Filter Material From To Weight / Volume Placement Method	14. I I/We time Com	DRILLI Certify the rig	ER'S Contract all reverse remediates	CERTIFICATION  minimum well construction standards were complied with at the moved.
Perforation Method Screen Type & Method of Installation Shuttle Screen (ASWG 10 FT)  From To Slot Size Number Diameter Material Casing Liner  280 340 18 MMY 8 STEEL  340 350 18 60 8 STEEL  10. FILTER PACK  Filter Material From To Weight / Volume Placement Method  PAR GLAVEL 380 242 — POUR  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	14. I I/We time Com	DRILLI Certify the rig pany Na	ER'S Cothat all rawas rem	Completed 4.10.04  CERTIFICATION minimum well construction standards were complied with at the noved.  Addimson Pump & Drull Firm No. 457  August Africa of Completed 4.15-04
Perforation Method Screen Type & Method of Installation SHUTTEL SCREEN (A) FT  From To Sict Size Number Diameter Material Casing Liner  280 240 /8 MWY 8 STEEL   10. FILTER PACK  Filter Material From To Weight / Volume Placement Method  Filter Material From To Weight / Volume Placement Method  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  16. ft. below ground Artesian pressure	14. I I/We time Com	DRILLI Certify the rig	ER'S Cothat all rawas rem	CERTIFICATION  minimum well construction standards were complied with at the moved.
Perforation Method Screen Type & Method of Installation SHUTTEL SCREEN (A) FT  From To Sict Size Number Diameter Material Casing Liner  280 240 /8 May 8 STEEL   10. FILTER PACK  Filter Material From To Weight / Volume Placement Method  Filter Material From To Weight / Volume Placement Method  7/6 PKA GLAVEL 380 242 POLICE  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  16. It below ground Artesian pressure  b.  Depth flow encountered ft. Describe access port or control devices:	14. I I/We time Comp Prince and Drille	DRILLI Certify the rig pany Na cipal Dri	ER'S Cothat all rawas rem	Completed 4.10.04  CERTIFICATION minimum well construction standards were complied with at the noved.  Adding Pump & Drull Firm No. 457  Aus Adamson Date 4.15-04  Completed 4.10.04
Perforation Method Screen Type & Method of Installation SHUTTEL SCREEN (A) FT  From To Sict Size Number Diameter Material Casing Liner  280 240 /8 MWY 8 STEEL   10. FILTER PACK  Filter Material From To Weight / Volume Placement Method  Filter Material From To Weight / Volume Placement Method  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  16. ft. below ground Artesian pressure	14. I I/We time Comp Prince and Drille	DRILLI Certify the rig pany Na	ER'S Cothat all rawas rem	Completed 4.10.04  CERTIFICATION minimum well construction standards were complied with at the noved.  Addimson Pump & Drull Firm No. 457  August Africa of Completed 4.15-04

# Exploration Hole SVR 7 Spring Valley Ranch



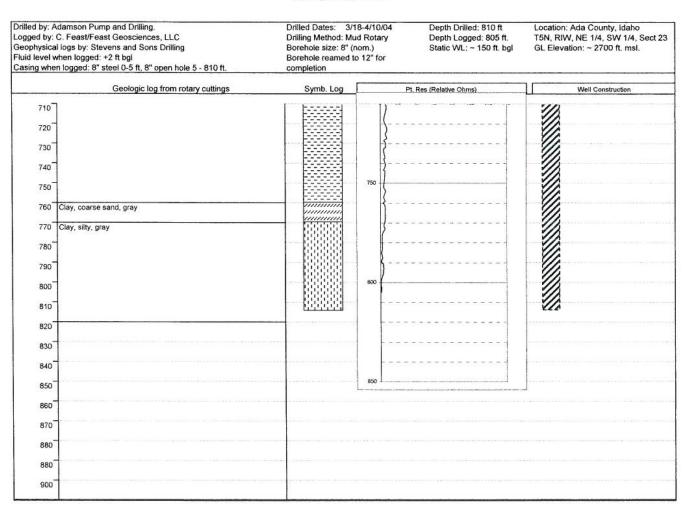
SVR7ASCIGPlog Page 1 of 3

# Exploration Hole SVR 7 Spring Valley Ranch

Location: Ada County, Idaho Drilled by: Adamson Pump and Drilling. Drilled Dates: 3/18-4/10/04 Depth Drilled: 810 ft Depth Logged: 805 ft. Static WL: ~ 150 ft. bgl Logged by: C. Feast/Feast Geosciences, LLC Drilling Method: Mud Rotary T5N, RIW, NE 1/4, SW 1/4, Sect 23 Geophysical logs by: Stevens and Sons Drilling Borehole size: 8" (nom.) GL Elevation: ~ 2700 ft. msl. Fluid level when logged: +2 ft bgl Borehole reamed to 12" for Casing when logged: 8" steel 0-5 ft, 8" open hole 5 - 810 ft. completion Geologic log from rotary cuttings Symb. Log Pt. Res (Relative Ohms) Well Construction 350 360 3/8" minus washed gravel 370 Sand, fine to medium, silty, clayey, wood fragments, gray 380 390 Clay, fine sand, gray 400 8" mud rotary test hole, backfilled with 410 Sand, fine, silty, light gray, very few cuttings retained bentonite grout 420 430 Silt, fine-sand, clayey, gray 440 450 Sand, fine, silty, light gray 460 470 Clay, brown Sand, fine, silty and clayey, medium gray 480 490 500 510 Clay, medium to coarse sand, silty, medium gray Clay, silty, medium gray, wood fragments 660-670 530 540 550 550 560 570 580 590 600 600 610 620 630 640 650 660 670 680 690 700

SVR7ASCIGPlog Page 2 of 3

# Exploration Hole SVR 7 Spring Valley Ranch



SVR7ASCIGPlog Page 3 of 3

# AQUIFER TEST DATA

Well No.: Spring Valley Ranch, Test Well SVR 7

Q=500 gpm, t = 22 hours 15 min.

		line flow m		mison Pump	and Drilling	CO.		
		d by: Well		Water level	measure poi	nt: Top of 1"	PVC tube	
Elevation		3.0 ft agl			Static WL (ft		163.71	
mp on:	04/21/04	11:00	Pump off:	04/22/04	9:44			
	18/11/11/11				Water L	evel Data		
				Ref	Measure	WL	Drawdown	769
Date	Time	t (mins)	t/t'	(ft.)	(in.)	(ft bmp)	(feet)	Comments
4/21/04	10:55	0		160.0	42.5	163.54		Static water level: Meter start 68950 cf
4/21/04	10:30	0		160.0	44.5	163.71	0.0	Start test, Q = 86 gpm
4/21/04	11:01	1		180	10	180.83	17.12	Q = 300 gpm
4/21/04	11:02	2		180	28	182.33	18.62	
4/21/04 4/21/04	11:03 11:05	3 5		180	31	182.58	18.87	
4/21/04	11:06	6		180 180	32 33	182.67 182.75	18.96 19.04	
4/21/04	11:08	8		180	32	182.67	18.96	
4/21/04	11:09	9		180	31	182.58	18.87	
4/21/04	11:11	11		180	31	182.58	18.87	
4/21/04	11:13	13		180	31	182.58	18.87	
4/21/04	11:15	15		180	31.5	182.63	18.92	
4/21/04	11:17	17		180	30.5	182.54	18.83	
4/21/04	11:20	20		180	32.5	182.71	19.00	Clear, T 68.7°F
4/21/04	11:22	22		180	31.5	182.63	18.92	BODE TO SET USE SPECIAL PROCESSES
04/21/04	11:25	25		180	29	182.42	18.71	Increase Q to 400 gpm
04/21/04	11:26	26		190	-9.5	189.21	25.50	
04/21/04	11:27	27		190	-8	189.33	25.62	
04/21/04	11:29	29		190	-9	189.25	25.54	
04/21/04	11:31	31		190	-9.5	189.21	25.50	
04/21/04	11:33	33		190	-12	189.00	25.29	
04/21/04	11:35	35		190	-11	189.08	25.37	
04/21/04	11:37	37		190	-12.5	188.96	25.25	
04/21/04	11:40	40		190	-12.5	188.96	25.25	
04/21/04	11:45	45		190	-14	188.83	25.12	
04/21/04	11:50	50		190	-12.5	188.96	25.25	500
04/21/04	11:55	55		190	-13	188.92	25.21	Increase Q to max, ~500 gpm
04/21/04	11:56	56		195	-3.5	194.71	31.00	
04/21/04	11:57	57 60		195 195	-5 5	194.58	30.87	
04/21/04	12:00 12:05	65		195	-5 -8	194.58 194.33	30.87 30.62	
04/21/04	12:10	70		195	-9	194.35	30.54	
04/21/04	12:18	78		195	-9	194.25	30.54	
04/21/04	12:25	85		195	-11	194.08	30.37	
04/21/04	12:30	90	1	195	-11	194.08	30.37	
04/21/04	12:43	103	1	195	-11	194.08	30.37	Sample @ 12:45
04/21/04	12:55	115	1	195	-12.5	193.96	30.25	T 68.1°F, pH=7.00, SC=300 μs
04/21/04	13:25	145		195	-14	193.83	30.12	
04/21/04	13:50	170		195	-13	193.92	30.21	
04/21/04	14:15	195		195	-15	193.75	30.04	
04/21/04	15:00	240	1	195	-15	193.75	30.04	
04/21/04	15:30	270	1	195	-16	193.67	29.96	
04/21/04	16:00	300		195	-17	193.58	29.87	
04/21/04	17:00	360	1	195	-17.125	193.57	29.86	
04/21/04	18:00	420		195	-16.75	193.60	29.89	
04/21/04	19:00	480		195	-17	193.58	29.87	
04/21/04	20:00	540		195	-17	193.58	29.87	
04/21/04	21:00	600	1	195	-18	193.50	29.79	
04/21/04	22:00	660		195	-16.5	193.63	29.92	
04/21/04	23:00	720		195	-18	193.50	29.79	
04/22/04	0:00	780	1	195	-17	193.58	29.87	
04/22/04	1:00	840		195	-18	193.50	29.79	
04/22/04	2:00	900	1	195	-18	193.50	29.79	
04/22/04	3:00	960		195	-18	193.50	29.79	
04/22/04	4:00	1020		195 195	-17	193.58	29.87	
04/22/04	5:00 6:00	1080		195	-17 -17	193.58 193.58	29.87 29.87	
04/22/04	7:00	1140	1	195	-17	193.58	29.87	
04/22/04	8:00	25 (2.386) (2.5	1	195	-17	193.58	29.87	
04/22/04	9:11	1260 1331		195	-16.75	193.50	29.79	
04/22/04	9:11	1364		195	-16.75	193.58	29.89	Meter end 15647 cf
	overy, pun		04/22/04			1 133.30	25.01	protes and 19077 of
04/22/04	9:45	1365	1365.0	160	27	162.25	-1.46	
04/22/04	9:47	1367	455.7	165	2	165.17	1.46	
04/22/04	9:48	1368	342.0	165	1.5	165.13	1.41	
		1370	228.3	165	-2	164.83	1.12	I .

# AQUIFER TEST DATA

Well No.: Spring Valley Ranch, Test Well SVR 7

Q=500 gpm, t = 22 hours 15 min.

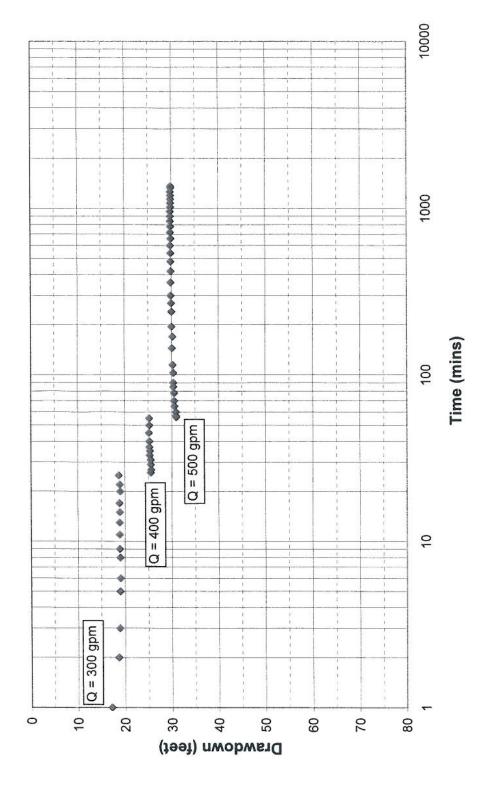
AP Elevati	on:	3.0 ft agl			Static WL (ft I	omp):	163.71	
ump on:	04/21/04	11:00	Pump off:	04/22/04	9:44			
		00-00-00			Water Le	evel Data		
				Ref	Measure	WL	Drawdown	
Date	Time	t (mins)	t/t'	(ft.)	(in.)	(ft bmp)	(feet)	Comments
04/22/04	9:52	1372	171.5	165	-3	164.75	1.04	
04/22/04	9:54	1374	137.4	165	-4	164.67	0.96	
04/22/04	9:55	1375	125.0	165	-4.5	164.63	0.91	
04/22/04	9:56	1376	114.7	165	-5	164.58	0.87	
04/22/04	9:58	1378	98.4	165	-6	164.50	0.79	
04/22/04	10:00	1380	86.3	165	-6.5	164.46	0.75	
04/22/04	10:02	1382	76.8	165	-6.75	164.44	0.73	
04/22/04	10:04	1384	69.2	165	-7	164.42	0.71	
04/22/04	10:06	1386	63.0	165	-7.25	164.40	0.69	
04/22/04	10:09	1389	55.6	165	-7.75	164.35	0.64	
04/22/04	10:12	1392	49.7	165	-8	164.33	0.62	
04/22/04	10:15	1395	45.0	165	-8.25	164.31	0.60	
04/22/04	10:19	1399	40.0	165	-8.75	164.27	0.56	
04/22/04	10:22	1402	36.9	165	-9	164.25	0.54	
04/22/04	10:25	1405	34.3	165	-9	164.25	0.54	
04/22/04	10:30	1410	30.7	165	-9.25	164.23	0.52	
04/22/04	10:35	1415	27.7	165	-9.25	164.23	0.52	
04/22/04	10:40	1420	25.4	165	-9.25	164.23	0.52	
04/22/04	10:50	1430	21.7	165	-9.5	164.21	0.50	
04/22/04	11:00	1440	18.9	165	-10	164.17	0.46	
04/22/04	11:20	1460	15.2	165	-10.25	164.15	0.44	
04/22/04	11:35	1475	13.3	165	-10.25	164.15	0.44	
04/22/04	12:05	1505	10.7	165	-10.25	164.15	0.44	
04/22/04	12:25	1525	9.5	165	-10.5	164.13	0.41	
04/22/04	12:50	1550	8.3	165	-10.5	164.13	0.41	
04/22/04	13:00	1560	8.0	165	-10.5	164.13	0.41	
04/22/04	13:30	1590	7.0	165	-10.75	164.10	0.39	
04/22/04	14:00	1620	6.3	165	-11	164.08	0.37	
04/23/04	14:30	1650	5.8	165	-11.25	164.06	0.35	
04/23/04	15:00	1680	5.3	165	-11.25	164.06	0.35	
04/23/04	16:00	1740	4.6	165	-11.5	164.04	0.33	
04/23/04	17:00	1800	4.1	165	-11.75	164.02	0.31	
				1				
	Comments	1	L		L		L.	

SVR7aquifertest1 2 of 2

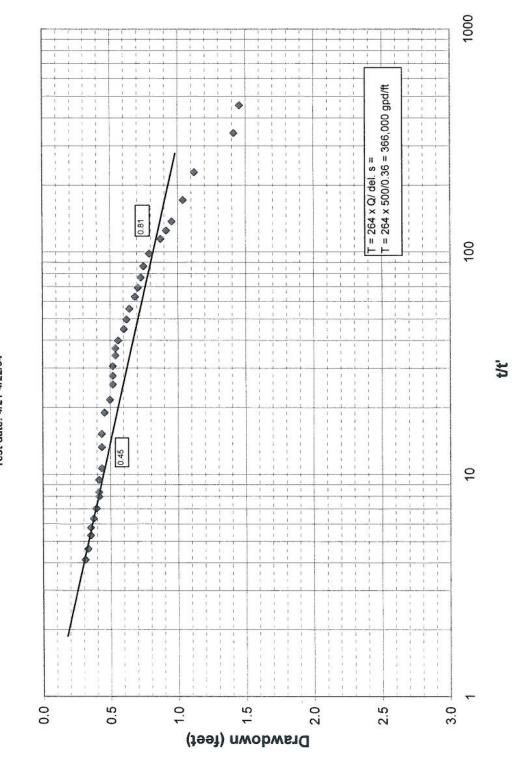
• ••••• Spring Valley Ranch Test Well SVR 7, Q = 500 gpm) Test date: 4/21-4/22/04 Time (mins) Drawdown (feet)

Drawdown and Recovery

Time - Drawdown Spring Valley Ranch Test Well SVR 7, Q = 500 gpm Test date: 4/21-4/22/2004



Time - Recovery
Spring Valley Ranch
Test Well SVR 7, Q = 500 gpm
Test date: 4/21-4/22/04



# AQUIFER TEST DATA

Well No.: Stock well, observation well for SVR 7

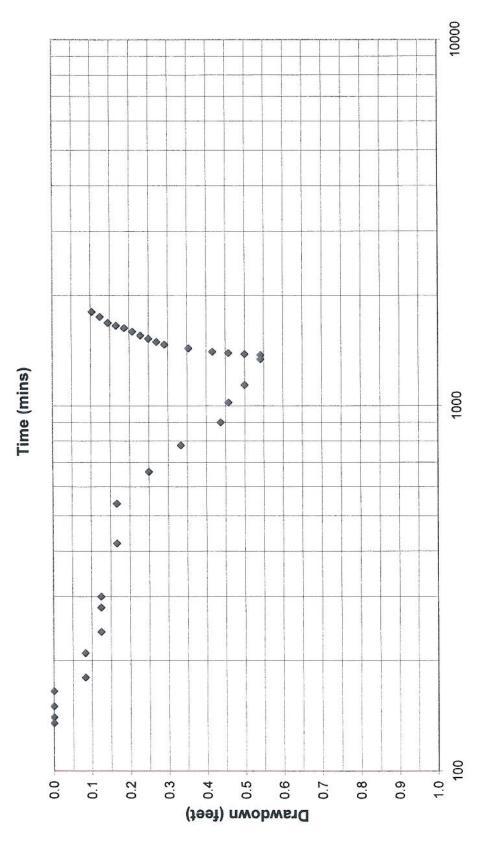
Q=500 gpm, t = 22 hours 15 min.

	ls measure		well, Radius		measure poi	nt: Top of 4"	well seal	
P Elevati		1.0 ft agl			Static WL (ft		150.00	
ump on:	04/21/04	11:00	Pump off:	04/22/04	9:44			
					Water Lo	evel Data		
				Ref	Measure	WL	Drawdown	1
Date	Time	t (mins)	t/t'	(ft.)	(in.)	(ft bmp)	(feet)	Comments
04/21/04	13:05	0		150	1	150.08	1	Had to cut lock, missed first part of pumping period
04/21/04	13:10	0		150	0	150.00	0.0	
04/21/04	13:15	135		150	0	150.00	0.00	
04/21/04	13:20	140		150	0	150.00	0.00	
04/21/04	13:30	150		150	0	150.00	0.00	
04/21/04	13:45	165		150	0	150.00	0.00	
04/21/04	14:00	180		150	1	150.08	0.08	
04/21/04	14:30	210		150	1	150.08	0.08	
04/21/04	15:00	240		150	1.5	150.13	0.13	
04/21/04	15:40	280		150	1.5	150.13	0.13	
04/21/04	16:00	300		150	1.5	150.13	0.13	
04/21/04	18:00	420		150	2	150.17	0.17	
04/21/04	20:00	540		150	2	150.17	0.17	
04/21/04	22:00	660		150	3	150.25	0.25	
04/22/04	0:00	780		150	4	150.33	0.33	
04/22/04	2:00	900		150	5.25	150.44	0.44	
04/22/04	4:00	1020		150	5.5	150.46	0.46	
04/22/04	6:00	1140		150	6	150.50	0.50	
04/22/04	9:20	1340		150	6.5	150.54	0.54	
	overy, pum		04/22/04	9:44		100.01	1 0.01	
04/22/04	9:57	1377	37.2	150	6.5	150.54	0.54	
04/22/04	10:04	1384	31.5	150	6	150.50	0.50	
04/22/04	10:14	1394	25.8	150	5.5	150.46	0.46	
04/22/04	10:24	1404	21.9	150	5	150.42	0.42	
04/22/04	10:55	1435	15.1	150	4.25	150.35	0.35	
04/22/04	11:30	1470	11.3	150	3.5	150.29	0.29	
04/22/04	11:55	1495	9.6	150	3.25	150.27	0.27	
04/22/04	12:25	1525	8.2	150	3	150.25	0.25	
04/22/04	12:55	1555	7.2	150	2.75	150.23	0.23	
04/22/04	13:35	1595	6.3	150	2.5	150.21	0.21	
04/22/04	14:10	1630	5.6	150	2.25	150.19	0.19	
04/22/04	14:35	1655	5.3	150	2	150.17	0.17	1
04/22/04	15:05	1685	4.9	150	1.75	150.15	0.15	
04/22/04	16:10	1750	4.3	150	1.5	150.13	0.13	
04/22/04	17:05	1805	3.9	150	1.25	150.10	0.10	1
Notes and	Comments			İ			<u> </u>	

SVR7aquifertest1 1 of 1

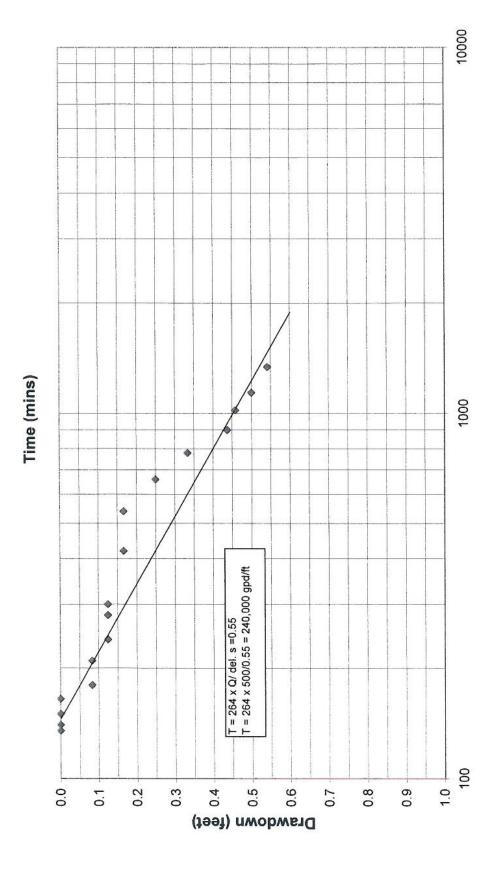
Drawdown and Recovery Spring Valley Ranch Obs. Well for SVR 7, Q = 500 gpm) Test date: 4/21-4/22/04



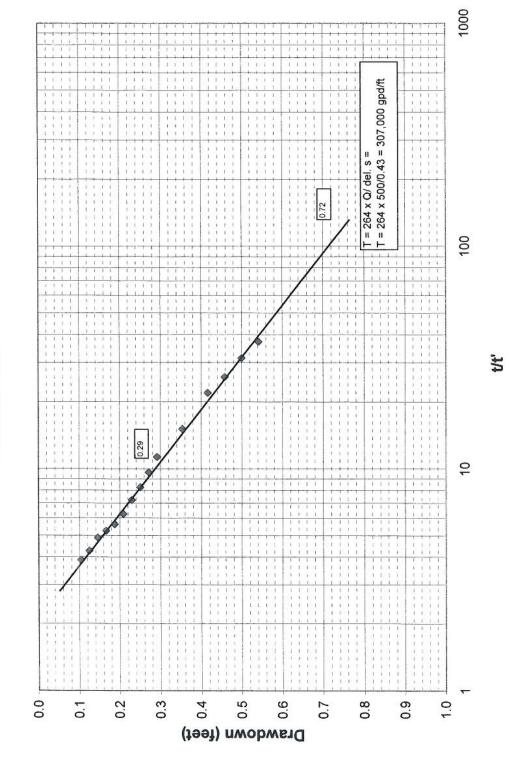


Drawdown





Time - Recovery
Spring Valley Ranch
Obs. Well for SVR 7, Q = 500 gpm
Test date: 4/21-4/22/04



# Laboratory Analysis Report

Sample Number: 0412351

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Nitrate (as N)	10	0.31	ma/l	0.20	EPA 300.0	4/22/2004	ww
Nitrite (as N)	1.00	<0.01	mg/L				
	1.00		mg/L	0.01	EPA 353.2	4/22/2004	ww
Bicarbonate		114	mg/L		SM 2320	4/28/2004	ARR
Chloride, Cl	UR	5	mg/L	1	EPA 300.0	4/22/2004	ww
Fluoride, F	4.0	0.44	mg/L	0.10	EPA 300.0	4/27/2004	ww
Sulfate, SO4	UR	24	mg/L	1	EPA 300.0	4/22/2004	ww
Hardness	UR	110	mg/L	5.0	SM 2340	4/28/2004	ARR
Sulfide, Dissolved (as H2S)		< 0.05	mg/L	0.05	SM 4500-S2 D	4/22/2004	RG
Total Dissolved Solids	UR	212	mg/L	25	EPA 160.1	4/24/2004	DLR

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit UR = Unregulated

midal p. marie

LAB FEDERAL ID#: ID00020	)20	LAB SAMPLE #: 0412351	
DATE LAB REC'D SAMPLE:	4/22/2004	DATE REPORTED BY LAB:	5/25/2004
COMPLIANCE SAMPLE	YES NO	COMPLIANCE SAMPLE   YES   NO REPLACEMENT SAMPLE	
COLLECTION DATE:	4/21/2004	COLLECTION TIME: (24 hour clock)	12:45
SAMPLE TYPE: CO-confirmati RT-routine DU-duplicate	on	RP-repeat SP-special Other	
PWS#:	PWS NAME:	PWS NAME: SPF WATER ENGINEERING, LLC	LLC
SAMPLING POINT/LOCATION: SPRING VALLEY RANCH #7		TAG #/FACILITY ID:	
COLLECTOR'S NAME: C FEAST	AST	CONTACT PHONE # (208) 383-4140	383-4140



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

# PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT:

			Phase II			10000000000000000000000000000000000000			と 一般の		Phase V	が温温な	を見るな	1000年の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の	
FRDS	Contaminant Name	Result*	Method	MCL*	* MDL*	* Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst
0	Barium	2	ш	2	0.05	4/27/2004	동	1085	Thallium	9	SM 3113 B	0.002	0.002	5/10/2004	DMB
1015	Cadmium	2	SM 3113 B	0.005	0.0005	1	DMB	1075	Beryllium	Q	SM 3113 B	0.004	0.0005	5/10/2004	DMB
1020	Chromium	Q	SM 3113 B		0.002	5/6/2004	DMB	1074	Antimony	Q.	SM 3113 B	900.0	0.005	5/13/2004	DMB
1035	Mercury	R	EPA 245.1	0.002		4/29/2004	SS	1036	Nickel	R	EPA 200.7	n/a	0.02	4/26/2004	폭
8	TII(N02/N03)	1	and a part of the control of the con	2							Other IOCs	locs			
1040	Nitrate	0.31	EPA 300.0	2	0.2	4/22/2004	ww	1052	Sodium	22.9	EPA 200.7	n/a	0.1	4/23/2004	품.
1041	Nitrite	9	EPA 353.2	1.0	0.01	4/22/2004	ww	1025	Fluoride	0.44	EPA 300.0	4.0	0.1	4/27/2004	MM.
1045	Selenium	:		0.05				1005	Arsenic	S	SM 3113 B 0.05	0.05	0.005	4/29/2004	독
1024	Cyanide	1		0.2											
	の の は の は の は の の の の の の の の の の の の の						Seconda	Secondary IOUS (optional)	optional)		は世界の対抗の対対		A Company	150 TO 15	
1050	Silver	1		0.1				2905	Surfactants	1		-		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
1049	Silica, As SiO2							1997	Langlier Index	ı					
1042	Potassium	2.0	EPA 200.7		0.5	4/23/2004	독	1930	Dissolved Solids	212	EPA 160.1	200	25	4/24/2004	DLR
1032	Manganese	9	EPA 200.7	0.05	0.05	4/26/2004	독	1927	Alkalinity as CaC03	1					
1031	Magnesium	8.19	EPA 200.7		0.1	4/23/2004	픙	1926	Conductivity uS/cm	i		j			
1028	Iron	0.11	EPA 200.7	0.3	0.05	4/26/2004	ᅩ	1925	동	1		6.5-8.			
1027	Hydrogen Sulfide	9	SM 4500-S		0.05	4/22/2004	RG	1920	Odor (Threshold #)	1		က			
1022	Copper	1		1.0				1915	Hardness as CaC03	110	SM 2340		5	4/28/2004	ARR
1017	Chloride	က	EPA 300.0	250	-	4/22/2004	ww	1905	Color	1		15c.u.			
1016	Calcium	29.1	EPA 200.7		0.1	4/23/2004	丐	1095	Zinc	1		2			
1003	Ammonia as N	R	EPA 350.1		0.04	4/28/2004	ww	1055	Sulfate	24	EPA 300.0	250	-	4/22/2004	WW
1002	Aluminum	1		0.05											

S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105 TERRY SCANLAN, P.E., P.G.

BOISE, ID, 83706

ND = Not detected within sensitivity of instrument \*Reported in mg/L unless otherwise noted MDL = Method detection limit --- = No analysis performed

Michael M. Merze 5/27/04 Signature of Laboratory Supervisor

Page 1 of 3
Printed 03/15/2004
Drilling Permit No. 811501
Well Tag No. D0031062
Well ID # 382205
Water Right No.
Receipt # W031368
Approved Date March 15, 2004

# STATE OF IDAHO DEPARTMENT OF WATER RESOURCES DRILLING PERMIT

Relationshi Name: Address:		LLEY DEVELOPMENT LLC RIVERSIDE DR 3616	Phone: (208) 939-0343
Proposed V	Vell Location:	Township 05N, Range 01W, Section 23, COUNTY ADA Sub Name WELL #7	NE, SW
Street Addr	ess of Well Site	EAGLE ID	( RD
Proposed U	lse of Well:	Test	
Well Constr	ruction Informat	ion:	
B. Pr		e Diameter: 8 Inches. Proposed Depth 80 m Hole Temperature: 85F and less	00 Feet.
Constructio	n Start Date:	Mar 12 2004	
Anticipated	Well Drilling Co	ompany: ADAMSON PUMP & DRILLIN	G (No. 457)
Applicant's	Signature:	See original application	Date
Title:			The state of the s

# Well Tag No. D0031062

### ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Monday, March 15, 2004.

- 1. This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.
- 2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft. from any drainfield and 50 ft. from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft. from any drainfield or septic tank.
- 3. The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.
- 4. Approval of this drilling permit does not authorize trespass on the land of another party.
- 5. This permit does not constitute other local, county, state or federal approvals that may be required for construction of a well.
- 6. This drilling permit does not represent a right to divert and use the water of the State of Idaho. If the well being drilled is associated with approved water rights(s) use of the well must comply with conditions of said water right(s).
- 7. If a bottom hole temperature of 85 Degrees F (29.44 oC) or greater is encountered, well construction shall cease and the well driller and the well owner shall contact the Department of Water Resources immediately.
- 8. Idaho Code, S 55-2201 55-2210 requires the applicant and/or its contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line" Number for this location is 1-800-342-1585
- 9. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.
- 10. This drilling permit has been approved for construction or drilling of an exploratory well intended to be used for collecting geologic, hydrologic or water quality data.
- 11. No water shall be produced from this well or any fluid injected into this well without specific written authorization from the Department.
- 12. Any surface casing installed in this well shall not exceed 8 inches nominal diameter.
- 13. All casing strings installed in this well shall be sealed their entire length with approved seal material and by positive means of placement unless otherwise authorized by this drilling permit.
- 14. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal material and placement methods, casing schedules and specifications shall be submitted for review by the department and attached to this drilling permit prior to the start of construction.
- 15. No casing installed in this well shall be drilled and driven through multiple aquifers, unless it is completely removed and the borehole is properly sealed or the casing is perforated at appropriate intervals and pressure grouted with approved grout. Drilling and driving casing may be allowed above the water table or where multiple aquifers are not encountered provided that the casing is sealed as required by administrative rules.

- 16. This well shall be properly plugged in accordance with a plan approved by the department at least 30 days prior to the expiration of the bond.
- 17. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to the expiration of the bond, the Director may commence action to attach the bond and hire a licensed driller to properly plug the well.
- 18. Drilling of this well shall not commence until the Department has received a document from the surety company or bank stating that the bond is in full force and effect and the Department has determined the amount of the bond is sufficient.
- 19. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of this well. The bond shall remain in effect and accessible by the Director until this well is plugged. The bond amount for this well shall be at least \$5,600.

Signature of Authorized Dept Representative

Sr WR Agent

# Appendix C Supplementary Data Spring Valley Ranch Exploration Well SVR 9

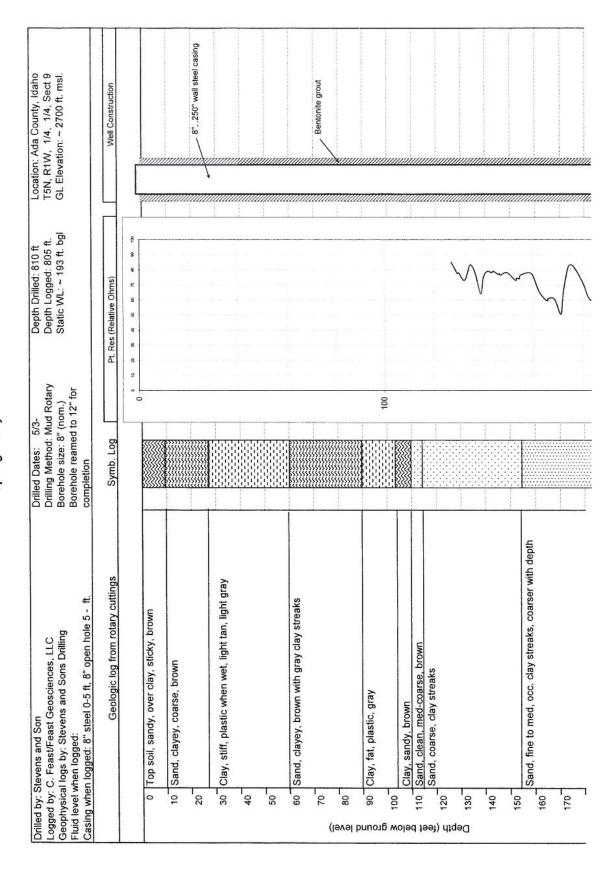
Form	238-7
302	

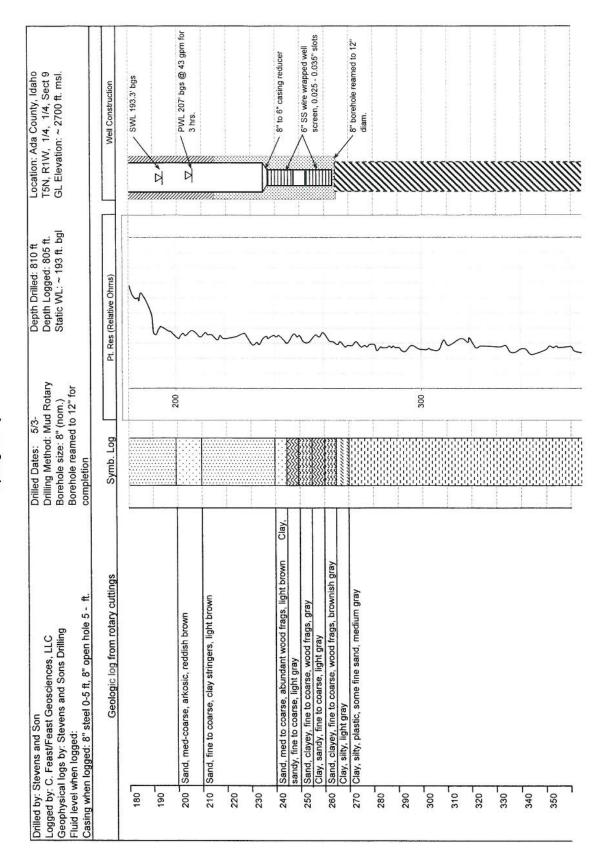
# IDAHO DEPARTMENT OF WATER RESOUR WELL DRILLER'S REPORT

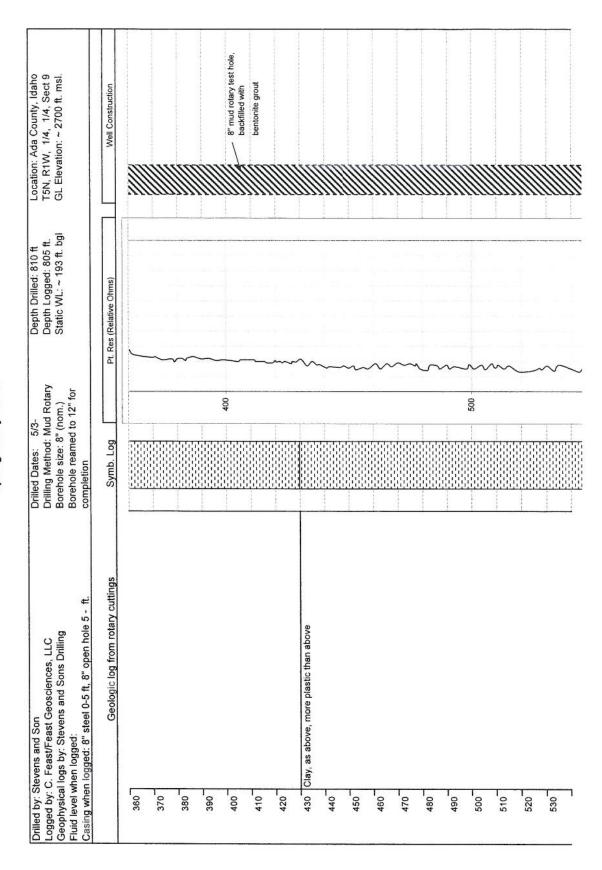
		A18.4		Office Use O	nly		
		*					
R RESOU	RCES		Well I			-	
	TIOLO		Inspec	ted by		-	
REPORT			Two	Rge	_Sec		
			e -	1/4 1/4	1/4		
			1 - 1	Long	10 1 1		
1	2. WELL TESTS:		Lat:				
	. □ Pump	□ Bailer	☐ Air		Time		-1
_	Yield gal./min.	Drawdov	vn	Pumping Level			-!
+		1	4'	207	4/9	shz.	
	43		-				
		-					
83616				Bott	om hole temp.		
1	Water Temp				Call II		
,	Water Quality test o	r comments:					
	Water Quality tool o	8		Denth first V	Vater Encount	er	
				ing or abandonme	nt)	Wat	
	13. LITHOLOGIC	LOG: (Desc	ribe rep	airs or abandonme	1	T	
		D-marks:	Litholog	y, Water Quality & Te	mperature	Y	N
	Bore From To						X
		tansa.	il. s	andy clay			1.15
	0	Liver	han	n clay			_X
Rd	10 2						X
	27 61	o tan g	ray c	lay n clay w/ !	OHOU ATH	eat	XX
		n sandy	brou	in clay wr	July Drz		X
		11 OHALL	crau				
				NA AVAII			1
	70,	0 sandy	_U/COU	nd w/ gray	Atroabs		1
	110 15		0 501	and will andu	July 1		
	155 19	C ACCH	o to	modeum sun	u w		
	133 17	0.00	A IID	treaks		X	+
			· · ·	and		X_	
	198 21	0 redd	csn-s	and	thoobs	X_	
lacement etc.)	210 24	13 fine	sand	w/ clay st	Julies -		
		er land	111/ 11	and clay	30000	+^-	1
		20 .: 0+	" OHA	11 hrue Cour	1	+	+
		30 silt	y you	ay blue cli	111		-
	430 5	30 stic	ky gr	ay but co	<del>Ly</del>		
	1 200 5	211 6040	Lhar	0		1	
	550 3	en arau	blue	clay——			+
	531 /	81 hard	- bank	20			+
ement Method	780 7	81 nara	sruu	0011		_	+
	781 8	06 gray	f blu	elay —		1	1
d							
d \	,						
$\overline{}$	-						+
						-	-+
	1						
Welded Thread	ed						
XX □							
<i>&gt;</i> ∞ =							
^~		1		u . l. i.e	a she		
		- topp	ed wi	th chips 2	.0 3103		
0	-				nest l		
	_						
			THE MAN STREET				
	-					1	
	-				- d	(Mea	Stir
sing Liner	Completed [	Depth & O.A. d	rille	d, 263 case	٠		
. □	Completed			Com	poleted 4/9	5/0	14
X =	Date: Start	ed6/	104	Com	- U/ E	5 /-0	
X -	44 DDULE	R'S CERTIFI	CATION		31	W 1222	V.V
	14. DRILLE	n a ULNIII	well cor	struction standards	were complied	d with	at t
	I/We certify.th	tarian Cilchenta	, 17011 001	1			
cement Method	time the right	as removed.		) · ·		1.7	
			1.	dans 1	<b>9</b> Fir	rm No	. L
	Company Na	me Steve	ens &	pure/1//	, ,		0.
				12/	Date	6/	18
	Principal Dril	ier		VIX			
	and	aratar Il	9	1///	O Date		
al dovices:	Driller or Op	erator	1	180119	26/	- 68	
rol devices:		- 8 8	16	40490	Date		
	Operator I _	all.	ipal Drille	er and Knowbergler	Required.	>	
		Operated	Torricy h	avendature Del	6 Sperator II		
	12 TO 16 Sport State Sta				No. 46		
··· · · · · · · · · · · · ·	ODV TO WATER						

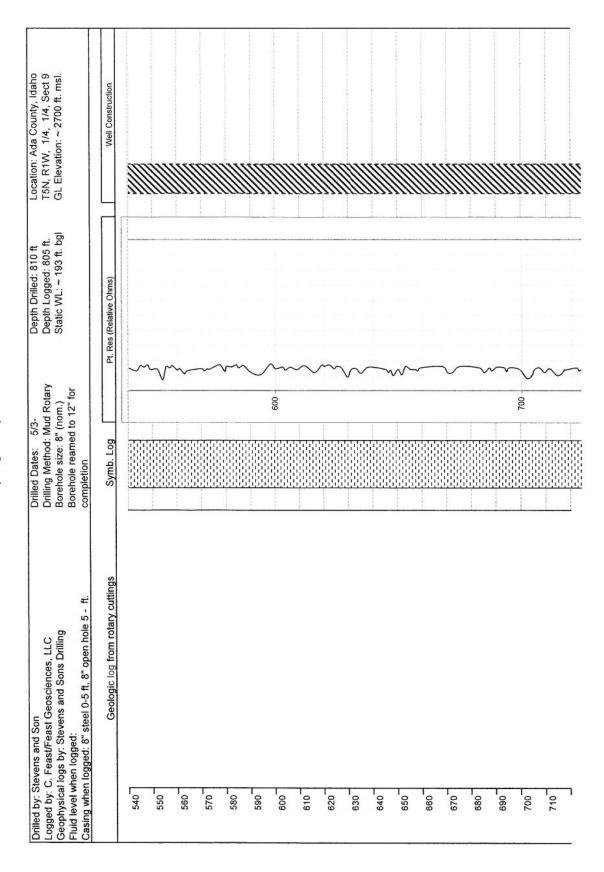
WELL DITTLELIT O			1/
WELL TAG NO. D			Lat:
	12. WELL TES		
Nater Right or Injection Well No. 386274	Pum Yield gal./min	p 🗆 Bailer	Air
water right or injuries	Yield gal./min	. Drawo	
2. OWNER:	43		14'
NameSUNCOR			
Address 485 E Riverside Ut. #300 Zip 83616			
Address485 E Riverside Ut. #300 State ID Zip 83616	Water Temp		
	Water Quality to	est or comments:	
3. LOCATION OF WELL by legal determined to well.	200000		
3. LOCATION OF WELL by legal description:  You must provice address or Lot Blk, Sub. or Directions to well.  Twp	13. LITHOLO	GIC LOG: (De	scribe repairs
East XX or West	[Burl		s: Lithology, W
1/4 S/HL 1/4 No/ations 1/4	Dia.		
30V11 ct County Ada	8 0	10 tops	oil, san
Lat: : : Long: : : Chach Pd	10	27 sand	, brown
Address of Well Site 1/2 mile SW of Willow Creek Rd	27	60 tan	gray clo
City	1 60	90 sand	ly brown
Give at linear in tracin Detance to Road of Landman.  Lt Blk Sub. Name	- 90	104 gray	j clay
L. DIV.		110 sano	ly brown
	110	155 coa	ise sana
4. USE:	155	198 cow	rse to m
4. USE:  ☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Webst #9			clay str
Domestic Municipal XXther test #9	198	210 red	dish san
(Replacement etc	.) 210	243 fin	e sand u
5. TYPE OF WORK check all that apply (Replacement etc. New Well  Modify  Abandonment  Other	_ 243_	265 san	d-w/-woo
XX New Well Mounty	265	430 sil	ty gray
CONTROL NO CONTROL AND A POST	130	530 sti	cky grai
6. DRILL METHOD:    Air Rotary	530	531 har	d shale
	531	1280 ara	eu blue
7. SEALING PROCEDURES	- 1 78/L	1 X 1 - 11W	tu simec
	781	806 gra	zy blue
		+	
bentanite grout215 0 300 gal pumped bentanite grout215 N Shoe Depth(s)			
	X	+	
Was drive shoe seal tested? TY N How?		+	
8. CASING/LINER: Cosing Liner Welded Thr	1		
To Gauge Material Casing	readed	-	
225 250 stool XX			
- D		1	1: +1
		top	ped with
_ength of Headolpe Length of Tailpipe0			
Packer IV IN Type	_		
<ol> <li>PERFORATIONS/SCREENS PACKER TYPE</li> </ol>			
Perforation Method			
- I Slot Size   Number   Diameter   Material	Comple	ted Depth 806	drilled,
From 5 Sol Size Nones 411 Atrils XX			
725-1-745	Date:	Started6/_	-/UT
253 263 30 6" stnls	14. DRI	LLER'S CERTI	FICATION
	I/We cer	tify that all minim	TIMI WEII COUST
10. FILTER PACK  From To Weight / Volume Placement Method	time the	rig was removed.	
Filter Material From 2 2000#	Compar	y Name _Ster	ughs & 8
#8-12-sand		-	
OR ARTESIAN PRESSURE:		I Driller	
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  10.2 LAW below ground Artesian pressure	and Driller o	r Operator	1
19314ff. below ground Artesian pressureio.  Depth flow encountered198 ft. Describe access port or control devices:		18/4	N/ /
Depth flow encountered	Operate	)r I	ricipal Driller a
		- 6	1 4 40-15

SVR9

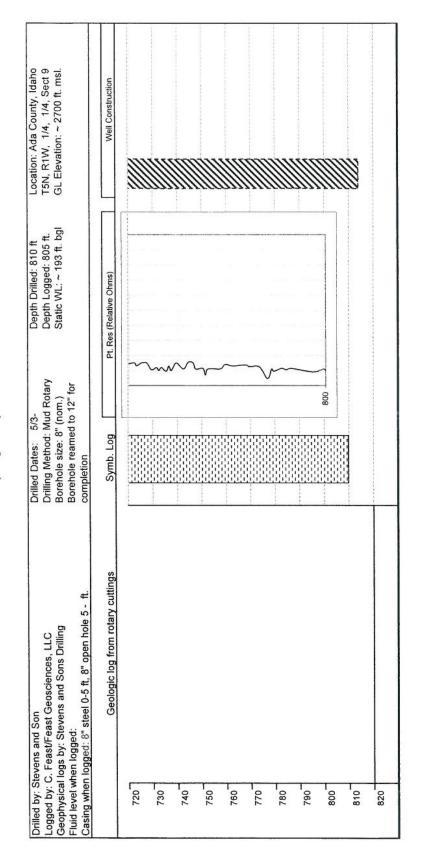








Exploration Hole SVR 9 Spring Valley Ranch



Well No.: Spring Valley Ranch, Test Well SVR 9
Test conducted by: Feast Geosciences; Stevens and Son Drilling Co.

Q=43 gpm, t = 3 hours

	ured by: Bu s measure			Water level	measure poi	nt: Top of 1"	poly tube	
P Elevation		4.0 ft agl	odilaci		Static WL (ft		197.33	
imp on:	06/23/04		Pump off:	06/23/04	12:40	omp).	107.00	
				100	Water Le	evel Data		
				Ref	Measure	WL	Drawdown	30 MV
Date	Time	t (mins)	t/t'	(ft.)	(in.)	(ft bmp)	(feet)	Comments
2/04/04	9:10	-		197	4.00	197.3		Static water level
6/23/04	9:25	5		211	10.00	211.8	14.5	Start test, Q = surging/high Q as pump column fills
6/23/04	9:30	10		211		211.0	13.7	Throttle Q = 43 gpm
06/23/04	9:31	11		211	0.25	211.0	13.7	
06/23/04	9:32	12		211		211.0	13.7	
06/23/04	9:33	13		210	11.00	210.9	13.6	
06/23/04	9:34	14		210	11.00	210.9	13.6	
06/23/04	9:36	16		210	10.50	210.9	13.5	
06/23/04	9:37	17		210	10.25	210.9	13.5	
06/23/04	9:38	18		210	10.00	210.8	13.5	
06/23/04	9:39	19		210	10.25	210.9	13.5	
06/23/04	9:40	20		210	10.00	210.8	13.5	
06/23/04	9:41	21		210	10.00	210.8	13.5	
06/23/04	9:42	22		210	10.00	210.8	13.5	
06/23/04	9:43 9:44	23		210	10.50	210.9	13.5	
06/23/04	9:44	24 25		210 210	11.00 10.75	210.9 210.9	13.6 13.6	
06/23/04	9:50	30		211	1.00	210.9	13.8	
06/23/04	9:55	35		211	0.50	211.0	13.7	
06/23/04	10:00	40		211	1.25	211.0	13.8	
06/23/04	10:05	45		211	1.50	211.1	13.8	
06/23/04	10:10	50		211	2.25	211.2	13.9	
06/23/04	10:15	55		211	2.00	211.2	13.8	
06/23/04	10:20	60		211	1.75	211.1	13.8	
06/23/04	10:25	65		211	2.00	211.2	13.8	
06/23/04	10:30	70		211	1.50	211.1	13.8	
06/23/04	10:35	75		211	1.50	211.1	13.8	
06/23/04	10:40	80		211	1.50	211.1	13.8	
06/23/04	10:45	85		211	2.00	211.2	13.8	
06/23/04	10:50	90		211	2.25	211.2	13.9	
06/23/04	10:55	95		211	3.00	211.3	13.9	
06/23/04	11:00	100		211	3.00	211.3	13.9	
06/23/04	11:10	110		211	2.75	211.2	13.9	
06/23/04	11:20	120		211	2.50	211.2	13.9	
06/23/04	11:30	130		211	3.25	211.3	13.9	
06/23/04	11:40	140		211	2.00	211.2	13.8	
06/23/04	11:50	150		211	1.75	211.1	13.8	
06/23/04	12:00	160		211	1.00	211.1	13.8	Section 44 (4) To Executable what standings
06/23/04	12:10	170		211	1.00	211.1	13.8	Collected sample, T 68 F, pH, nm SC nm
06/23/04	12:20	180		211	1.25	211.1	13.8	
06/23/04	12:30	190		211	1.25	211.1	13.8	
06/23/04	12:40	200		211	1.25	211.1	13.8	Stopped test
	overy, pum		06/23/04	12:40		470.00	1 67.6	
06/23/04	12:41	201	201	170.0		170.00	-27.3	
06/23/04	12:42	202	101	180.0	6.3	180.52	-16.8	İ
06/23/04	12:43	203	68	190.0 192.0	1.0	190.08	-7.3	
06/23/04	12:44	204	51	14(0)(732)(0)	1.0	192.08	-5.3	
06/23/04 06/23/04	12:45	205 206	41	194.0	4.5	194.38	-3.0	
06/23/04	12:46 12:47	206	34	195.0 196.0	10.0 5.3	195.83 196.44	-1.5 -0.9	
06/23/04	12:47	207	26	196.0	10.0	196.44	-0.9	
06/23/04	12:49	208	23	196.0	1.0	195.83	-0.5	
06/23/04	12:50	210	21	197.0	3.3	197.00	-0.3	
06/23/04	12:51	211	19	197.0	3.3	197.27	-0.1	
06/23/04	12:53	213	16	197.0	4.0	197.27	0.0	
06/23/04	12:55	215	14	197.0	4.0	197.33	0.0	
06/23/04	12:57	217	13	197.0	4.0	197.33	0.0	
06/23/04	12:59	217	12	197.0	4.0	197.33	0.0	
06/23/04	13:05	225	9	197.0	4.0	197.33	0.0	
UD//3/U4		1 -20	1 0	101.0	1.0	101.00	0.0	

Recovery data affected by drainage from 4 pump column

SVR9aquifertest 1 of 1

240 180 Drawdown and Recovery Spring Valley Ranch Test Well SVR 9, Q = 43 gpm) Test date: 6/23/2004 Time (mins) 90 distriction deligi -30 Drawdown (feet) -20 10 20

9E

Printed 05/24/2004
Drilling Permit No. 815596
Well Tag No. D0031492
Well ID # 386274
Water Right No.
Receipt # W031747
Approved Date 05/25/2004

# STATE OF IDAHO DEPARTMENT OF WATER RESOURCES DRILLING PERMIT

Relationship: Applicant Name: SUNCOR Address: 485 EAST RIVERSIDE DR SUITE 300 EAGLE ID 83616	Phone: (208)939-0343
Proposed Well Location: Township 05N, Range 01E, Section 9, SW COUNTY ADA Sub Name TEST WELL 9	, NE
Street Address of Well Site: 1/2 MILE SW OF WILLOW CREEK RD EAGLE ID	
Proposed Use of Well: Test	
Well Construction Information:	
A. New Well	
B. Proposed Surface Diemeter: 8 Inches. Proposed Depth 800	Feet.
C. Anticipated Bottom Hole Temperature: 85F and less	
Construction Start Date: May 25 2004	
Anticipated Well Drilling Company: STEVENS & SONS WELL DRILL	LING INC (No. 153)
Applicant's Signature: See original application	Date
Title:	

### Well Tag No. D0031492

## ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Tuesday, May 25, 2004.

 This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.

2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft, from any drainfield and 50 ft, from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft, from any drainfield or septic tank.

3. The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.

 Approval of this driffing permit does not authorize trespass on the land of another party.

This permit does not constitute other local, county, state or federal approvals that may be required for construction of a well.

6. This drilling permit does not represent a right to divert and use the water of the State of Idaho. If the well being drilled is associated with approved water rights(s) use of the well must comply with conditions of said water right(s).

7. If a bottom hole temperature of 85 Degrees F (29.44 oC) or greater is encountered, well construction shall cease and the well driller and the well owner shall contact the Department of Water Resources immediately.

8. Idaho Code, S 55-2201 - 55-2210 requires the applicant and/or its contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line" Number for this location is 1-800-342-1585

9. Please be advised that this drilling permit should be considered and treated as a preliminary permit, if you are in disagreement with this preliminary permit you have fourteen (14) days of the service date of this permit to petition the Idaho Department of Water Resources for reconsideration, pursuant to Section 67-5243, Idaho Code.

10. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.

11. This drilling permit has been approved for construction or drilling of an exploratory well intended to be used for collecting geologic, hydrologic or water quality data.

12. No water shall be produced from this well or any fluid injected into this well without specific written authorization from the Department.

Any surface casing installed in this well shall not exceed 8 inches nominal diameter.

14. All casing strings instatled in this well shall be sealed their entire length with approved seal material and by positive means of placement unless otherwise authorized by this drilling permit.

15. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal material and placement methods, casing schedules and specifications shall be submitted for review by the Department and attached to this drilling permit prior to the start of construction.

16. No casing installed in this well shall be drilled and driven through multiple aquifers, unless it is completely removed and the borehole is properly sealed or the casing is perforated at appropriate intervals and pressure grouted with approved grout. Drilling and driving casing may be allowed above the water table or where multiple aquifers are not encountered provided that the casing is sealed as required by administrative rules. 17. This well shall be properly plugged in accordance with a plan approved by the department at least 30 days prior to the expiration of the bond.

18. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to he expiration of the bond, the Director may commence action to attached the bond and hire a licensed driller to properly plug the well.

19. Drilling of this well shall not commence until the Department has received a document from the surety company or bank stating that the bond is in full force and effect and the Department has determined the amount of the bond is sufficient. 20. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of the well. The bond shall remain in effect and accessible by the Director until this well is plugged. The bond amount for this well shall be at least \$7,200.

authorized Dept Representative

5rWR Agent

1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

Attn: TERRY SCANLAN, P.E., P.G. S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105 BOISE, ID 83706

Collected By: C FEAST Submitted By: C FEAST

Source of Sample:

PROJECT: SPRING VALLEY RANCH SVR 9 (AS DISSOLVED)

Time of Collection:

12:15

Date of Collection:

6/23/2004

Date Received:

6/23/2004

Report Date:

7/19/2004

### PWS:

### Laboratory Analysis Report

Sample Number: 0420336

### SAMPLE FILTERED USING 0.45 UM FILTER PRIOR TO ANALYSIS.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Arsenic Furnace	0.05	< 0.005	mg/L	0.005	SM 3113 B	6/27/2004	DMB
Beryllium Furnace	0.004	< 0.0005	mg/L	0.0005	SM 3113 B	6/28/2004	DMB
Barium, Ba	2	0.10	mg/L	0.05	EPA 200.7	7/7/2004	JH
Antimony Furnace	0.006	< 0.005	mg/L	0.005	SM 3113 B	7/6/2004	DMB
Chromium Furnace	0.1	< 0.002	mg/L	0.002	SM 3113 B	7/1/2004	DMB
Mercury, Hg	0.002	< 0.0002	mg/L	0.0002	EPA 245.1	6/30/2004	DMB
Iron, Fe	UR	0.60	mg/L	0.05	EPA 200.7	7/1/2004	JH
Manganese, Min	UR	0.12	mg/L	0.05	EPA 200.7	7/1/2004	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	7/1/2004	JH
Thallium Furnace	0.002	< 0.002	mg/L	0.002	EPA 200.9	6/29/2004	DMB
Sodium, Na	UR	26.9	mg/L	0.10	EPA 200.7	6/28/2004	JH
Calcium, Ca	UR	24.9	mg/L	0.10	EPA 200.7	6/28/2004	JH
Magnesium, Mg	UR	10.4	mg/L	0.10	EPA 200.7	6/28/2004	JH
Potassium, K	UR	2.0	mg/L	0.5	EPA 200.7	6/28/2004	JH
Metals Filtering		*				6/23/2004	KC
Cadmium Furnace	0.005	< 0.0005	mg/L	0.0005	SM 3113 B	7/17/2004	DMB

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit
UR = Unregulated

## Laboratory Analysis Report

Sample Number: 0420336

SAMPLE FILTERED USING 0.45 UM FILTER PRIOR TO ANALYSIS.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Selenium Furnace	0.05	< 0.005	mg/L	0.005	SM 3113 B	7/15/2004	DMB
Nitrate (as N)	10	< 0.2	mg/L	0.2	EPA 300.0	6/24/2004	ww
Nitrite (as N)	1.00	< 0.01	mg/L	0.01	EPA 353.2	6/25/2004	ARR
Ammonia Direct (as N)	UR	0.10	mg/L	0.04	EPA 350.1	6/25/2004	ww
Fluoride, F	4.0	0.45	mg/L	0.10	EPA 300.0	6/25/2004	ww
Bicarbonate		107	mg/L		SM 2320	6/29/2004	ARR
Sulfate, SO4	UR	44	mg/L	1	EPA 300.0	6/24/2004	ww
Chloride, Cl	UR	10	mg/L	1	EPA 300.0	6/24/2004	ww
рН	UR	2.5	S.U.		EPA 150.1	6/25/2004	ww
Conductivity	UR	336	umhos	2	EPA 120.1	6/24/2004	ww
Hardness	UR	102	mg/L	5.0	SM 2340	6/29/2004	ARR
Total Dissolved Solids	UR	216	mg/L	25	EPA 160.1	6/25/2004	DLR

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit UR = Unregulated

Midael 1 yrun



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

### Laboratory Analysis Report

Sample Number: 0420337

**Attn:** TERRY SCANLAN, P.E., S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105

12:15

BOISE, ID 83706

**Collected By:** C FEAST **Submitted By:** C FEAST

Source of Sample:

PROJECT: SPRING VALLEY RANCH SVR 9 (UNFILTERED)

Time of Collection:

Date of Collection:

6/23/2004

Date Received:

6/23/2004

Report Date:

6/28/2004

PWS:

### SAMPLE COULD NOT BE FILTERED; IT WAS COLLECTED IN A PREPRESERVED BOTTLE.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sulfide, Dissolved (as H2S)		< 0.05	mg/L	0.05	SM 4500-S2 D	6/25/2004	DLR

Marel D. 9 you

# Appendix D Supplementary Data Spring Valley Ranch Exploration Well SVR 10

# IDAHO DEPARTMENT OF WATER RESOURCES

			Office Use O	nly_ a	,
Form 238-7 IDAHO DEPARTMENT OF WATER RESO 6/02 WELL DRILLER'S REPORT		Inspi	ected by		
1. WELL TAG NO. D		Iwp	Rge		-
DRILLING PERMIT NO. 815597	12. WELL TESTS:	Lat:			
Water Right or Injection Well No.		<u> </u>			
	Pump	☐ Bailer ☐ A	Pumping Level	Time	<u> </u>
2. OWNER:	AIR 506A		Fullping Laves		
Name SWCOR	AIC SUGA		-	T I	
Address 485 EAST RIVERSIDE DR SUTE 300			<b> </b>		
City EAGLE 10 State 10 Zip 83616	Water Temp.	L	Botton	m hole temp.	
3. LOCATION OF WELL by legal description:				ii noie temp.	
You must provide address or Lot, Blk, Sub. or Directions to well.	Water Quality test or	comments:			
Twp. 05 North X or South 🗆			Depth first Wa		
Rge. O/ East X or West	13. LITHOLOGIC I	LOG: (Describe rep	airs or abandonment	)	Water
Sec. 8 , SW 1/4 SW 1/4 1/4	Bore From To	Remarks: Litholog	y, Water Quality & Tem	perature	YN
Gov't Lot County AOA acres 160 acres		TOP SOIL 9	CANIA		-
Lat: : : Long: : :		SANDY CL			
Address of Well Site 1/2 MILE NE OF WILLOW CREEK		COARSE S			$\neg$
RD (Give at loast name of road + Disconce to Road or Landmark)  City <u>EAGLE</u>		COARSE SA			
Lt Bik Sub. Name			US & CLAY A	(iN)	
			Y CLAY MU		+
		TAN CLAY			
4. USE:		SAVID YCLA			
□ Domestic □ Municipal □ Monitor □ Irrigation	620 630		70179		$\neg$
☐ Thermal ☐ Injection ☐ Other		SANDYCH	v		$\neg$
5. TYPE OF WORK check all that apply (Replacement etc.)			LES CLAY O	DADSO	
New Well  Modify  Abandonment  Other		CLAY TAU 9		23766	
			UN STREAKS	: 1	
6. DRILL METHOD:			STEERIS IN		
☐ Air Rotary ☐ Cable  Mud Rotary ☐ Other		TAN CLAY			
		TAU CLAY			
7. SEALING PROCEDURES		SOFT WHITE			
Seal Material From To Weight / Volume Seal Placement Method	1 100 100		Y +BLUE CLA	Y-Saun	
30 to B. Glour / 500 \$ 200 LB Presule Gloure	1 /02/100	HARD CLAY			
Was drive shoe used? SA UN Shoe Depth(s)			-COARSE SAM	VA	
Was drive shoe seal tested? TY N How?			HARD 4 BOD		
GLUEL 3/2 FROM 770 TO 666		BLUE CLAS			
8. CASING/LINER:		BLUE CLA			
Diameter From To Gauge Material Casing Liner Welded Threaded	800 825	BLUE CLAY	SHORT SOFT	SAOTS	
8" +2 600 250 STEEL 8 17 1	825 835	BLUE CLA			
6" 630 600 259 STEEL 0 X 8 0	835 860	BLUE +WI	HITE CLAY		
	860 880	BLUE CLAS	W/ COARSE :	SAUD	
Length of Headpipe 25 PT Length of Tailpipe O	880 920	SOFT BLU	m acase	1	WEL
Packer 🛎 N Type	920 940	BLUE CLA	y P	ECE	/ A -
9. PERFORATIONS/SCREENS PACKER TYPE	1 940 980	BLUE CLA			6 2004
Perforation Method	980 1000	BLUE CLA	4	AUG ]	9 7
Screen Type & Method of Installation Stations Station	1				ESOURG
From To Slot Size Number Diameter Material Casing Liner			7001	WATER	AN BEGI
640 680 40 - 6" STAWLESS -	Completed Depth	<del>-:</del>	170	(Me	asurable)
600 580 ,30 - 6" BTHULES -	Date: Started	6.7.04	Completed	7.2	904
	14. DRILLER'S C	ERTIFICATION			
10. FILTER PACK	I/We certify that all r	minimum well constru	ction standards were c	omplied with	at the
Filter Material From To Weight / Volume Placement Method	time the rig was rem			5//	
NONE	/	DANGE D	MP & Deiui	d of Circ. No.	457
	Company Name	A		-54.77.48	
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	Principal Drille	Dave Hos	m802 Da	ate 7-3	0-04
485 ft. below ground Artesian pressurelb.	and	N- 1	A	7.3	0.510
Depth flow encountered It. Describe access port or control devices:	Driller or Operator II	Lynn Ca	COMMOON DE	ate 12	0.01
well cap	Operator		Da	ate	
	Volume		Rig Operator Require	d.	
	17.0		gnature of Driller/Opera	ator II.	
FORWARD WHITE COP	Y 10 WATER RESO	URCES			

(First SURID Well)  Feast Geosciences, I.L.  Subject: 5/R10 (Adamson's Log)	9736 Transit Lane, Belie: (ID 97708 Tel 208 599-4501, Fax 208 362-9348  Drawn by: Date: 6/2.8/0.9  Project No.:
0-15 Brown clay 15-60 Tan clay of course Sand 60-63 Course Sand Mard driving 62-	Page: of

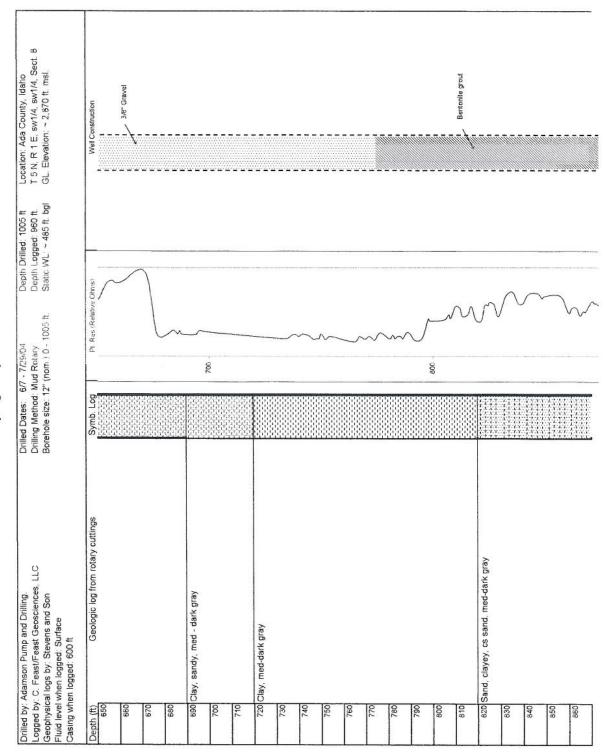
	-	0-15	Broson Clay
4	\\	15-60	Tan clay of course sand course sand hard driving 62-63 course sand (dry) from clay (Steady drilling) for gravel, quartz color course sand
1	12-1	60.63	course sand hard devive, 62-63
1 1	1	103 100	courses and (dry) of Tou clay (steam drilling)
		- 100-140	for graver, quarte color à course sand
	30	1610	( stanks of both stanks and some
	5/2	220-235	Soudy Clay (coaise) Trans
	2	235 - 260	soul (whitish) quarte
	0	260 - 280	Sand, quarte, white
1	00	240 - 305 40 - 305 - 340	Sound an across carrier dansier to drive
1	E E	340 - 347	Sand as above, so for
p.	1	347 - 355	course sand 4 gray chang
		365 - 380	Course Soura
	11	20 390	coarse good water at street up
1111		340-345	5. Historia & Coarse Sand
	- 1	395 - 405	year a dility some officery
1111		JOS - 418	Coarse sand, our clay miles
both	1.00	418 -420	Fittstone & course said
	mint.	410-435-440	lagrae sand "holding together"
111	ATT	440 - 460	
1	13.	160 - 47Kg	) concersond w/ wedned olay isoltstone
		400 - 475	of clam's silts took of whom course sand
1 11		1075 - 481.	1. Chy of course said
THY	5 5	80	Lidelled agailable habelings and Adamson call
	-,/-		Christian PC said put closing down, it down call
	2.		465 470 then got tight 475-478
		441-445	Sund & changiness hard driving
	1. 16	or - 485-485	Sund changiness hard driving
5115		493-520	Sand caking tell "a little coose and
1 1		520 - 540	Sound coping fell is little copies and " Course Sound sounced water a Sito (30 gpm) Coarse Sound Cosmy fell Coarse Sound down hards
A. Lee	1	5-10-555	Louise Sand Cosnegatell
- 4 <del>00</del>		150 - 555 - 600	Course Sound, driving harden thinks soud is outside (440)
		620-650	rousse soul in which clan
- \$	1	650 - 660	Course Sand Clay energying
(4.4.) 1.4.4.	1	660-680	Course Sound ( white clay
£ 13			
7 .2	,	Show It block /	the lun, bodied she i pulled was it will pope
4		remove a	then I won bound over a brilled theo it Built before
3 3			

Logged by: C. Feast/Feast Geosciences, LLC Geophysical logs by: Stevens and Son Fluid level when logged: Surface Casing when logged: 600 ft	Drilling Method: Not - 17,250.4 Drilling Method: Mud Rotary Borehole size: 12" (nom.) 0 - 1005 ft	6/7 - 7/29/04 Mud Rotary 12" (nom.) 0 - 1005 ft	Depth Drilled: 1005 ft Depth Logged: 960 ft. Static WL: ~ 485 ft. bgl	CL. Elevation: ~ 2,870 ft. msl.
Death (ft) Geologic log from rotary cuttings	Symb. Log	Pt. Res (Relative Ohms)	Ohmsi	Well Construction
		0	30 40	
0 Top soil over clay, soft, plastic, coarse qtz. sand grains, buff- 10 yellow brown. 20 30 50				15" Mud rotary borehole
70 Sand and gravel, cs-vcs sand, fine gravel, clean, light gray	0 <sub>0</sub> 0 0 0 0			Bentonite grout
80 Sand, cs-vcs, clean, light gray				
90 Sand, med-cs, minor fines, light brown				
100 Sand and gravel, cs-vcs sand, med-cs gravel, clean, light gray	0 <sub>0</sub> 0 <sub>0</sub> 0 0 00 0 0 00 0	8		
120 Sand and gravel, cs-vcs sand, med gravel, clean, light gray	00 0.0 0.0 0.0			
130 Sand and gravel, cs-vcs sand, med-cs gravel, clean, light gray 140 150				
170 Sand and gravel, cs-vcs sand, fine gravel, clean, light gray	00 00 00 0 00 00			anaa www.
180 Sand, cs-vcs, clean, light gray				
190 Sand and gravel, cs-vcs, fine gravel, clean, light gray 200	06 06 60 0 0 06 60 0 60 60	500		

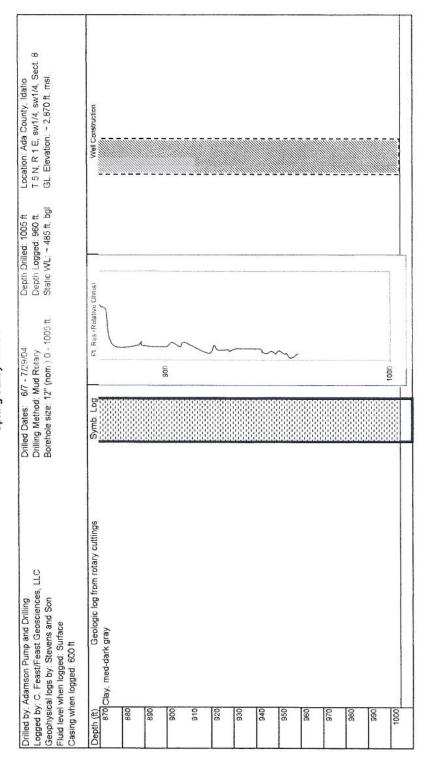
Logged by: C. Feast/Feast Geosciences, LLC Geophysical logs by: Stevens and Son Fluid level when logged: Surface Casing when logged: 600 ft	Drilling Method: Mud Rotary Borehole size: 12" (nom.) 0 - 1005 ft.	Depth Logged: 960 ft. Static VVL: ~ 485 ft. bgl	T 5 N, R 1 E, sw/1/4, sw/1/4, Sect. 8 GL, Elevation: ~ 2,870 ft, msl.
Depth (ft) Geologic log from rotary cuttings S	Symb. Log Pt. Res (Relative Offms)	Others)	Well Construction
220 Sand and gravel, med-cs sand, fine gravel, minor clay, light brown			
ind gravel, med-cs sand, fine gravel, clean, light brown	0.00 c		
Sand and gravel, cs-vcs, sand, fine gravel, minor silt, light gray	00 01 00 01 00 01		
250			
260 Sand and gravel, cs-vcs, fine gravel, clean, light gray			
	00 0.0 0.0 0.0 0.0		
260	00 00 00 00 00		
290 Sand and gravel, cs-vcs, sand, fine gravel, minor silt, light gray			ti Ti Ti Ti
300] Sand, cs-vcs, clean, light gray	300		
310 Sand and gravel, cs-vcs, fine gravel, clean, light gray	00 00 00 00 00		
320	00 00 00 00 00		
330 Sand, cs-vcs, clean, light gray			
340 Sand, cs-vcs, clayey, gray		ter philips only good	
350			iana Tanana
360 Sand and gravel, cs-vcs, fine gravel, clean, gray	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	er en deut verse en d	
370 Sand and gravel, cs-vcs, fine to med gravel, clayey, gray	00 00 00 00		inani www.
380	00 0 00 0 00 0 0 0 0 0 0 0	an and a substitute	
400 Sand and gravel, cs-vcs, fine gravel, clean, gray	6 0 0 0 0 0 0 0 0 0		
410 Clay, sandy, gray			
420 Sand, clayey, cs sand, gray			

SVR10welllog

Congred by Transform Tarry and Constitution (LC) Geophysical logs by Stevens and Son Fluid level when logged: Surface Casing when logged: 600 ft	Drilling Method: Mud Rotary Borehole size: 12" (nom.) 0 - 1005 ft	of - 172904 Ceptr Dilled. 1003 t. Mud Rotary Deptr Logged: 960 ft.   12 (nom.) 0 - 1005 ft. Static VIL: ~ 485 ft. bgl	Location, Ada County, Tolario T 5 N, R 1 E, sw/14, sw/14, Sect. 8 Jl GL. Elevation: ~ 2,870 ft, msl.
Depth (ft) 430 Geologic log from rotary cuttings 440	Symb Log	Pt. Res (Relative Clinis)	Well Construction  Was Construction
450 Sand, cs-vcs, clean, light gray	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
470 Sand, clayey, cs sand, gray			NS X
460 Sand and gravel, cs-vcs, fine gravel, clean, gray	0.0 0.0 0.0 0.0 0.0		ingana N N
500	00 Uo 00 b C 00 00 00 00 00 00 00 00	200	1000
510 Sand, cs-vcs, clean, light gray			
520 Clay, sandy, gray			1 8" 250" wall steel casing
530 Sand, cs-vcs, clean, light gray			 
540 Sand and gravel, cs-vcs, fine gravel, clean, gray	00 00 00 00		
550 Sand, cs-vcs, clean, light gray	0		6". 250" wall steel casing
260			<del></del>
570			6" SS well screen, 0.030" slots
280		~	
069		الب	
009		√ 009	6",250" wall steel casing
610			<del></del>
620 Sand, cs-vcs, clayey, light gray	, 013		6" SS well screen, 0.040" slots
630		N	
640 Clay, sandy, v. light gray, dries white		~	]



Exploration Hole SVR 10 Spring Valley Ranch



### AQUIFER TEST DATA

Well No .: Spring Valley Ranch, Test Well SVR 10 Q = 55 gpm, t = 24 hours Test conducted by:Adamson Pump and Drilling Co. Flow measured by: Bucket and watch Water levels measured by: Well sounder Water level measure point: Top of 1" poly tube MP Elevation: 3.0 ft agl Static WL (ft bmp): 08/19/04 Pump on: Pump off: 08/20/04 11:32 11:33 Water Level Data Measure Drawdown Date t/t' (ft.) Time t (mins) (in.) (ft bmp) (feet) Comments 08/19/04 11:00 485 Static water level 485.1 08/19/04 11:30 485 SWL meter 015670 1 485.1 0.0 08/19/04 0 11:32 520 520.0 34.9 Q = 55 gpm 08/19/04 11:33 526 526.0 40.9 08/19/04 11:35 3 532 532.0 46.9 08/19/04 11:37 5 536 536.0 50.9 08/19/04 11:38 6 540 540.0 54.9 08/19/04 11:39 543 543.0 57.9 Q = 55 gpm 08/19/04 11:40 8 544 11 544.9 59.8 Q = 55 gpm08/19/04 11:45 13 544 59.8 544.9 11 08/19/04 12:25 53 544 544 9 59 8 11 08/19/04 13:00 88 544 11 544.9 598 08/19/04 544 13:30 118 10.75 544.9 59.8 Q = 55 gpm08/19/04 14:00 148 544 10.50 544.9 59.8 Q = 55 gpm, water clear 08/19/04 14:30 178 544 10 544.8 59.8 08/19/04 15:00 208 544 10 544.8 59.8 08/19/04 15:30 238 544 11 544.9 59.8 Water meter stuck 08/19/04 16:00 544.9 268 544 59.8 Q = 55 gpm, water clear 11 08/19/04 16:30 298 545 10.5 545.9 60.8 08/19/04 17:00 328 545 545.9 60.8 11 08/19/04 17:30 358 545 545 9 60.8 11 08/19/04 18:00 388 544 544.9 11 598 08/19/04 18:30 418 544 10.5 544.9 59 8 08/19/04 19:00 448 544 10.5 544.9 59.8 08/19/04 19:30 478 544 10 544.8 59.8 08/19/04 20:00 508 545 545.0 59.9 08/19/04 20:30 538 545 545.0 59.9 Sampled; T 24.4 °C (75.9°F), EC 160 µS, pH 7.64 08/19/04 21:00 568 545 545.0 59.9 08/19/04 21:30 598 545 545 0 59 9 08/19/04 22:00 628 545 545.0 59 9 the same meter reading as at 22:00 08/19/04 545.0 22:30 658 545 59 9 the same meter reading as at 22:00 08/19/04 23:30 718 545 545.0 59.9 08/20/04 0:30 778 545 545.0 59.9 08/20/04 1:30 838 545 545.0 59,9 08/20/04 2:30 898 545 545.0 59.9 08/20/04 3:30 958 545 545.0 59.9 08/20/04 4:30 1018 545 545.0 59.9 08/20/04 5:30 1078 545 545.0 59 9 08/20/04 6:30 1138 545 545.0 59.9 08/20/04 7:30 1198 545 545.0 59.9 still having meter problems 08/20/04 8:20 1248 545 545.0 59.9 meter working again 08/20/04 8:30 1258 545 545.0 59.9 08/20/04 9:30 1318 545 545.0 59.9 Meter 16013 08/20/04 10:30 1378 545 545.0 59.9 Meter 16043 08/20/04 Meter 16071 11:32 1440 545 545.0 59.9 08/20/04 11:33 1441 545 545.0 59.9 Stopped test Begin Recovery, pump off at: 08/20/04 11:33 08/20/04 525 0 11:34 1442 1442 525.0 39.9 08/20/04 11:35 1443 722 510.0 24 9 510.0 08/20/04 11:36 1444 481 500.9 500.9 15.8

Notes and Comments:

Pump at ~565 ft.

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

08/20/04

11:37

11:38

11:39

11:41

11:45

11:46

11:47

11:49

11:51

11:53

11:57

12:03

Recovery data affected by drainage from 4" pump column.

1445

1446

1447

1449

1453

1454

1455

1457

1459

1461

1465

361

289

241

181

121

112

104

91

81

73

61

493.7

489.0

486.4

485.3

485.1

485.1

485.0

485.1

485.1

485.1

485.1

485.1

493.7

489.0

486.4

485.3

485.1

485.1

485.0

485.1

485.1

485.1

485.1

485

8.6

3.9

1.3

0.2

0.0

0.0

-0.1

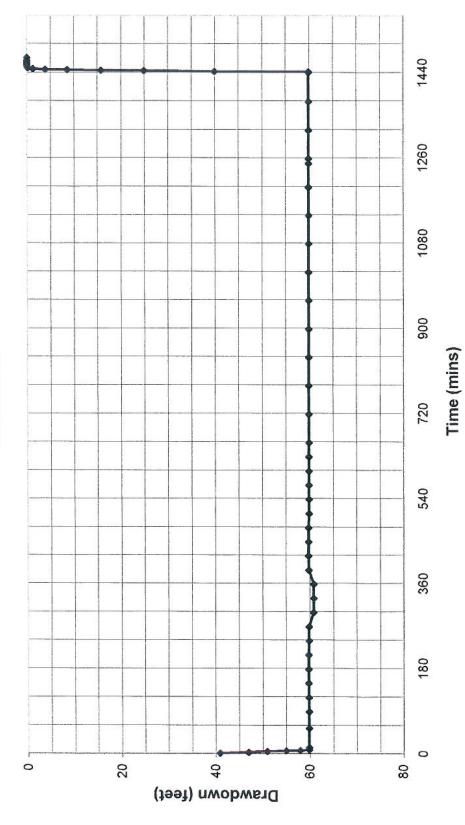
0.0

0.0

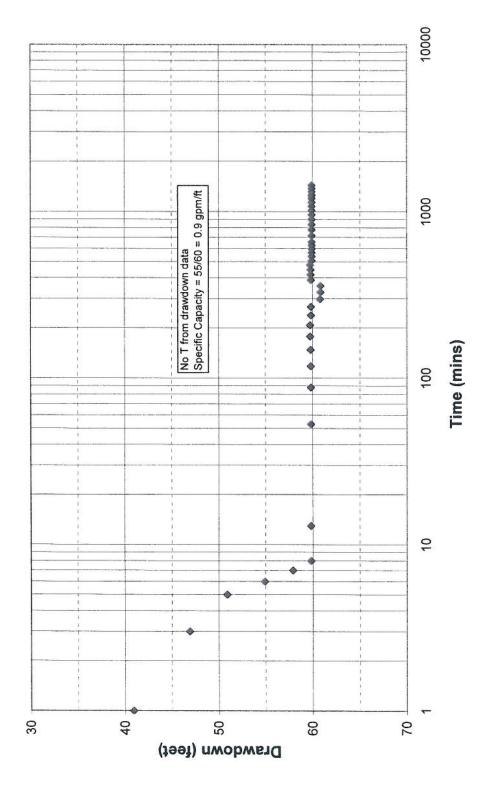
0.0

0.0

Drawdown and Recovery Spring Valley Ranch Test Well SVR 10, Q = 55 gpm) Test date: 8/19/2004



Time - Drawdown Spring Valley Ranch Test Well SVR 10, Q = 55 gpm Test date: 8/19/2004



10000 1000 \*\*\* Spring Valley Ranch Test Well SVR 10, Q = 55 gpm Test date: 8/19/2004 100 Time (mins) 10 100 10 Drawdown (feet)

Time - Drawdown

T = 264\*Q/del. S T = 264 \* 55/50 = 290 gpd/ft Time - Recovery
Spring Valley Ranch
Test Well SVR 10, Q = 55 gpm
Test date: 8/19/2004 **4.** Drawdown (feet)



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

Attn: TERRY SCANLAN, P.E., S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105 BOISE, ID 83706

Time of Collection:

20:30

Date of Collection:

8/19/2004

Date Received:

8/20/2004

Report Date:

9/7/2004

Collected By:

C FEAST

Submitted By:

C FEAST

Source of Sample:

PROJECT: SPRING VALLEY RANCH SUR-10

PWS:

### Laboratory Analysis Report

Sample Number: 0428005

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Antimony Furnace	0.006	<0.005	mg/L	0.005	SM 3113 B	8/31/2004	DMB
Arsenic Furnace	0.05	0.012	mg/L	0.005	SM 3113 B	9/1/2004	DMB
Barium, Ba	2	< 0.05	mg/L	0.05	EPA 200.7	8/30/2004	JH
Calcium, Ca	UR	17.1	mg/L	0.10	EPA 200.7	8/23/2004	JH
Chromium Furnace	0.1	0.002	mg/L	0.002	SM 3113 B	8/26/2004	DMB
Iron, Fe	UR	0.36	mg/L	0.05	EPA 200.7	9/2/2004	JH
Magnesium, Mg	UR	3.20	mg/L	0.10	EPA 200.7	8/23/2004	JH
Manganese, Mn	UR	< 0.05	mg/L	0.05	EPA 200.7	9/2/2004	JH
Mercury, Hg	0.002	< 0.0002	mg/L	0.0002	EPA 245.1	9/1/2004	KC
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	8/23/2004	JH
Potassium, K	UR	2.4	mg/L	0.5	EPA 200.7	8/23/2004	JH
Sodium, Na	UR	12.3	mg/L	0.10	EPA 200.7	8/23/2004	JH
Thallium Furnace	0.002	< 0.002	mg/L	0.002	EPA 200.9	8/29/2004	DMB
Cadmium Furnace	0.005	< 0.0005	mg/L	0.0005	SM 3113 B	8/26/2004	DMB
Beryllium Furnace	0.004	< 0.0005	mg/L	0.0005	SM 3113 B	8/27/2004	DMB
Selenium Furnace	0.05	< 0.005	mg/L	0.005	SM 3113 B	9/1/2004	DMB

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit UR = Unregulated

## Laboratory Analysis Report

Sample Number: 0428005

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Ammonia Direct (as N)	UR	< 0.04	mg/L	0.04	EPA 350.1	8/23/2004	WW
Nitrate (as N)	10	5.2	mg/L	0.2	EPA 300.0	8/20/2004	WW
Monitoring recommended.							
Nitrite (as N)	1.00	< 0.01	mg/L	0.01	EPA 353.2	8/20/2004	ARR
Hardness	UR	51.8	mg/L	5.0	SM 2340	8/26/2004	ARR
Bicarbonate		53.5	mg/L		SM 2320	8/26/2004	ARR
Chloride, CI	UR	2	mg/L	1	EPA 300.0	8/24/2004	WW
Fluoride, F	4.0	0.24	mg/L	0.10	EPA 300.0	8/30/2004	ww
Sulfate, SO4	UR	<1	mg/L	1	EPA 300.0	8/24/2004	ww
Sulfide	UR	< 0.05	mg/L	2	SM 4500-S2 D	8/23/2004	PM
Total Dissolved Solids	UR	70	mg/L	25	EPA 160.1	8/24/2004	PM

MCL = Maximum Contamination Level MDL = Method/Minimum Detection Limit UR = Unregulated

Cave M Sound

LAB FEDERAL ID#: ID00020	#: ID00(	020		LAB SAMPLE #:	0428005	
DATE LAB REC'D SAMPLE:	SAMPLE:	8/20/2004	1004	DATE REPORTED BY LAB:	/ LAB:	9/7/2004
COMPLIANCE SAMPLE		YES	ON.	YES NO REPLACEMENT SAMPLE	PLE	
COLLECTION DATE:	JE:	8/19/2004	04	COLLECTION TIME: (24 hour clock)		20:30
SAMPLE TYPE:	CO-confirmation	rmation	RP.	RP-repeat		
RT-routine	DU-duplicate	cate	SP.	SP-special Other	er	
PWS#:		PWS NAME:	AME:			



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

# PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT:

CONTACT PHONE # (208) 383-4140

TAG #/FACILITY ID:

PROJECT: SPRING VALLEY RANCH SUR-10 COLLECTOR'S NAME: C FEAST

SAMPLING POINT/LOCATION:

	Result* ND 0.002 ND 5.2 ND ND	Method MCL* EPA 200.7 2 SM 3113 B 0.005 SM 3113 B 0.1 EPA 245.1 0.002 10 EPA 353.2 10	MCL*	MDL*	Analysis Date	Anningt	2002			Mathod	* 1044			American
	ND 0.002 ND 85.2 ND ND ND ND ND ND ND ND ND ND ND ND ND		, y	C		Alialyst	200	Contaminant Name	Result*	Menior	MOL	MDL*	Analysis Date	Analyst
	0.002 N N D		14	20.0	00	H	1085	Thallium	Q	EPA 200.9	0.002	0.002	8/29/2004	DMB
	0.002 ND ND		20.00		8/26/2004	DMB	1075	Beryllium	9	SM 3113 B	0.004	0.0005	8/27/2004	DMB
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	EPA 245.1 EPA 300.0 FPA 353.2	0.1	0.002	8/26/2004	DMB	1074	Antimony	Q	SM 3113 B	900.0	0.005	8/31/2004	DMB
	5.2 ND ND			0.0002	9/1/2004	KC	1036	Nickel	QN	EPA 200.7 n/a		0.02	8/23/2004	ᆽ
	5.2 ND ND		9							Other IOCs	IOCs			
	Q Q I		19	0.2	8/20/2004	ww	1052	Sodium	12.3	EPA 200.7	n/a	0.1	8/23/2004	프
	Q I		1.0	0.01	8/20/2004	ARR	1025	Fluoride	0.24	EPA 300.0	4.0	0.1	8/30/2004	WW
		SM 3113 B 0.05		0.005	9/1/2004	DMB	1005	Arsenic	0.012	SM 3113 B	0.05	0.005	9/1/2004	DMB
			0.2									A COLUMN TO A COLU		
			URC 193			Seconda	Secondary IOCs (optional)	optional)						
			0.1				2905	Surfactants	1					
	1						1997	Langlier Index	1					
	2.4	EPA 200.7		0.5	8/23/2004	丐	1930	Dissolved Solids	70	EPA 160.1	200	25	8/24/2004	PM
	2	EPA 200.7	0.05	0.05	9/2/2004	丐	1927	Alkalinity as CaC03						
	3.20	EPA 200.7		0.1	8/23/2004	玙	1926	Conductivity uS/cm	1					
1028 Iron	0.36	EPA 200.7	0.3	0.05	9/2/2004	녹	1925	Hd	ı		6.5-8.			
	Q.	SM 4500-S		0.05	8/23/2004	PM	1920	Odor (Threshold #)	-	The second secon	3			
	Ι		1.0				1915	Hardness as CaC03	51.8	SM 2340		5	8/26/2004	ARR
	2	EPA 300.0	250	-	8/24/2004	WW	1905	Color	1		15c.u.			
1016 Calcium	17.1	EPA 200.7		0.1	8/23/2004	丐	1095	Zinc	-		5			
1003 Ammonia as N	Q	EPA 350.1		0.04	8/23/2004	WW	1055	Sulfate	R	EPA 300.0	250	-	8/24/2004	WW
1002 Aluminum	ı		0.05-						(					

S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105 TERRY SCANLAN, P.E., BOISE, ID, 83706

ND = Not detected within sensitivity of instrument \*Reported in mg/L unless otherwise noted --- = No analysis performed

MDL = Method detection limit

Signature of Laboratory Supervisor Date



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

### Laboratory Analysis Report

Sample Number: 0428002

Attn: TERRY SCANLAN, P.E., P.G. S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105

**BOISE, ID 83706** 

Source of Sample:

Collected By: C FEAST

Submitted By: C FEAST

PROJECT: SPRING VALLEY RANCH SUR-10

Time of Collection:

20:30

Date of Collection:

8/19/2004

Date Received:

8/20/2004

Report Date:

9/22/2004

PWS:

ELI-TESTING PERFORMED AT ENERGY LABORATORIES, INC. RESULTS RECEIVED 09/22/04. \*ND=NONE DETECTED @ 0.2 pCi/L.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Uranium-Total		*ND	pCi/L	0.2	EPA 908.1	9/7/2004	ELI

Lab Federal ID#:	WY00002	WY00002 Lab Sample 0428002	
Date Lab Rec'd Sample:		8/20/2004 Date Reported by Lab:	09/15/04
Compliance Sample	S: X Yes No	Compliance Sample:  X   Yes   No   Replacement Sample	
Collection Date:	8/19/2004	8/19/2004 Time Collected:	20:30
Sample Type:	CO-confirmation DU-duplicate	RP-repeat SP-special Other	1000
PWS#:	PWS Name: S	PWS Name: S P F WATER ENGINEERING, LLC	, LLC
Sampling Point/Location SPRING VALLEY R	pling Point/Location SPRING VALLEY RANCH SUR-10	Tag # / Facility ID:	
Collector's Name: C FEAST		Contact Phone #: (208)	(208) 383-4140



Phone (208) 342-5515 1804 N. 33rd Street Boise, Idaho 83703

# PUBLIC DRINKING WATER SYSTEM RADIOLOGICAL ANALYSIS REPORT

FRDS Number		CONTAMINANT	Result ug/L	Result ug/L Result pCi/L	MCL	Analysis Date	Analyst	Method
4002	Gross Alpha Activity (Includes Radium and Uranium)			1				
4006	Uranium (measure if gross al	(measure if gross alpha exceeds 15 pCi/L; activity = $1.0 \times \text{concentration ug/L}$	QN*	QN*	30	9/7/2004	H	EPA 908.1
4000	Adjusted Gross Alpha (Subtra	(Subtract Uranium activity level from Gross Alpha Activity above)		ı				
4020	Radium-226 (Required if Alpha	(Required if Alpha activity is greater than 5pCi!L.)		ı	34-6			
4030	Radium-228 (measure if radiu	(measure if radium 226 exceeds 3 pCi/L)		1				
4010	Total Measured Radium	(Sum of Ra-226 and Ra-228)		1				
4100	Beta/Photon Activity (Me	(Measure major constituents if activity exceeds 50 pCi/L)		1				

Lab Supervisor's Signature

ND = Not detected within sensitivity of instrument -- = No analysis performed for this contaminant

ELI-TESTING PERFORMED AT ENERGY LABORATORIES, INC. RESULTS RECEIVED 09/22/04. \*ND=NONE DETECTED @ 0.2 pCi/L.

S

S P F WATER ENGINEERING, LLC Attn: TERRY SCANLAN, P.E., P.G.

600 E RIVER PARK LN STE 105

BOISE, ID 83706



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

### Laboratory Analysis Report

Sample Number: 0428003

Attn: TERRY SCANLAN, P.E., S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105

Collected By: C FEAST

BOISE, ID 83706

Submitted By: C FEAST

Source of Sample:

PROJECT: SPRING VALLEY RANCH SUR-10

Time of Collection:

20:30

Date of Collection:

8/19/2004

Date Received:

8/20/2004

Report Date:

9/22/2004

PWS:

ELI-TESTING PERFORMED AT ENERGY LABORATORIES, INC. RESULTS RECEIVED 09/22/04. \*ND=NONE DETECTED @ 0.2 pCi/L. \*\*ND=NONE DETECTED @ 1.0 pCi/L.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Radium 226		*ND	pCi/L	0.2	EPA 903.0	8/25/2004	ELI
Radium 228		**ND	pCi/L	1	EPA 904.0	8/31/2004	ELI

Lab Federal ID#:	WY00002	WY00002   Lab Sample 0428003	
Date Lab Rec'd Sample:		8/20/2004 Date Reported by Lab:	09/13/04
Compliance Sample	e: X Yes No	Compliance Sample: X   Yes   No   Replacement Sample	
Collection Date:	8/19/2004	8/19/2004 Time Collected:	20:30
Sample Type:	CO-confirmation DU-duplicate	RP-repeat SP-special Other	
PWS#:	PWS Name: S	PWS Name: SPF WATER ENGINEERING, LLC	ING, LLC
Sampling Point/Location SPRING VALLEY R	pling Point/Location SPRING VALLEY RANCH SUR-10	Tag # / Facility ID:	
Collector's Name: C FEAST	<b>L</b>	Contact Phone #:	(208) 383-4140



1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

# PUBLIC DRINKING WATER SYSTEM RADIOLOGICAL ANALYSIS REPORT

FRDS Number	CONTAMINANT	Result ug/L	Result ug/L Result pCi/L	MCL	Analysis Analyst Date	Analyst	Method
4002	Gross Alpha Activity (Includes Radium and Uranium)		ı	er 40,000			
4006	<b>Uranium</b> (measure if gross alpha exceeds 15 pCi/L; activity = $1.0 \times \text{concentration ug/L}$	1	ı				
4000	Adjusted Gross Alpha (Subtract Uranium activity level from Gross Alpha Activity above)		I			A	
4020	Radium-226 (Required if Alpha activity is greater than 5pCi/L.)		Q V,		8/25/2004	ELI	EPA 903.0
4030	Radium-228 (measure if radium 226 exceeds 3 pCi/L)		QN**		8/31/2004	E	EPA 904.0
4010	Total Measured Radium (Sum of Ra-226 and Ra-228)		ı				
4100	Beta/Photon Activity (Measure major constituents if activity exceeds 50 pCi/L)		1				

Michael 1) There 9/24

ND = Not detected within sensitivity of instrument
-- = No analysis performed for this contaminant

ELI-TESTING PERFORMED AT ENERGY LABORATORIES, INC. RESULTS RECEIVED 09/22/04. \*\*ND=NONE DETECTED @ 0.2 pCi/L. \*\*ND=NONE DETECTED @ 1.0 pCi/L.

S

Attn: TERRY SCANLAN, P.E., S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105 BOISE, ID 83706

IDE

Printed 05/24/2004
Drilling Permit No. 815597
Well Tag No. D0031493
Well ID # 386275
Water Right No.
Receipt # W031747
Approved Date 05/25/2004

# STATE OF IDAHO DEPARTMENT OF WATER RESOURCES DRILLING PERMIT

		Phone: (208)939-0343
Proposed Wall Location	n: Township 05N, Range 01E, 3 COUNTY ADA TEST WELL	Section 8, SW, SW #10
Street Address of Well	Site: 1/2 MILE NE OF WILLOW EAGLE ID	CREEK RD
Proposed Use of Well	Teat	
Well Construction Info	mation:	
	face Diameter: 8 Inches. Propose ottom Hole Temperature: 85F and	
Construction Start Dat	3: Jun 01 2004	
Anticipated Well Drillin	g Company: ADAMSON PUMP	& DRILLING (No. 457)
Applicant's Signature:	See original application	Date
Title:		

Well ID # 386275

#### Well Tag No. D0031493

### ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Tuesday, May 25, 2004.

- 1. This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.
- 2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft. from any drainfield and 50 ft. from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft. from any drainfield or septic tank.
- The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.
- Approval of this drilling permit does not authorize trespass on the land of another party.
- 5. This permit does not constitute other local, county, state or federal approvals that may be required for construction of a well.
- 6. This drilling permit does not represent a right to divert and use the water of the State of Idaho. If the well being drilled is associated with approved water rights(s) use of the well must comply with conditions of said water right(s).
- 7. If a bottom hole temperature of 85 Degrees F (29.44 oC) or greater is encountered, well construction shall cease and the well driller and the well owner shall contact the Department of Water Resources Immediately.
- 8. Idaho Code, S 55-2201 55-2210 requires the applicant and/or its contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line" Number for this location is 1-800-342-1585
- 9. Please be advised that this drilling permit should be considered and treated as a preliminary permit. If you are in disagreement with this preliminary permit you have fourteen (14) days of the service date of this permit to petition the Idaho Department of Water Resources for reconsideration, pursuant to Section 67-5243, Idaho Code.
- 10. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.
- 11. This drilling permit has been approved for construction or drilling of an exploratory well intended to be used for collecting geologic, hydrologic or water quality data.
- 12. No water shall be produced from this well or any fluid injected into this well without specific written authorization from the Department.
- 13. Any surface casing installed in this well shall not exceed 8 inches nominal diameter.
- 14. All casing strings installed in this well shall be sealed their entire length with approved seal material and by positive means of placement unless otherwise authorized by this drilling permit.
- 15. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal material and placement methods, casing schedules and specifications shall be submitted for review by the Department and attached to this drilling permit prior to the start of construction.

#### Well ID #388275

Page 3 D0031493

- 16. No casing installed in this well shall be drilled and driven through multiple aquifers, unless it is completely removed and the borehole is properly sealed or the casing is perforated at appropriate intervals and pressure grouted with approved grout. Drilling and driving casing may be allowed above the water table or where multiple aquifers are not encountered provided that the casing is sealed as required by administrative rules.

  17. This well shall be properly plugged in accordance with a plan approved by the department at least 30 days prior to the expiration of the bond.
- 18. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to be expiration of the bond, the Director may commence action to attached the bond and hire a licensed driller to properly plug the well.
- 19. Drilling of this well shall not commence until the Department has received a document from the surety company or bank stating that the bond is in full force and effect and the Department has determined the amount of the bond is sufficient.
- 20. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of the well. The bond shall remain in effect and accessible by the Director until this well is plugged. The bond amount for this well shall be at least \$7,200.

Signature of Authorized Dept Representative

Sr WR Agout-

## Appendix E Geologic Cross Section Well Logs



# IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

Use Typewriter or Ball Point Pen

092975

1. DRILLING PERMIT NO. 65-94-W-0142 -000	11. WELL	L TES	TS:	☐ Flowing Artestan		
2. OWNER:	Yheld gall.		Drawdown	Pumping Level T	lms /	$\dashv$
Name_Stover Love		0	-			
Address 507 W 12th.			-			
City Emmett State Id Zip 83617	L		<del></del>			
				hole temp		_
3. LOCATION OF WELL by legal description:	Water Qual	ity test o	or comments:			_
Sketch map location must agree with written location.	10 1 771	01.00	10100.0			
N	12. LITH	OLUG		pairs or abandonment)	Wa	ter
X Two. 6 North 🕒 or South 🗆	Bore Dia. From	To	Remarks: Lithology, Wat	ter Quality & Temperature	Y	N
Twp. 6 North 🗗 or South 🗆	60	2	Top Som	Ø		$\times$
	2	_	Grovel			$\times$
Sec. 18 NO 1/4 NW 1/4 1/4  Gov't Lot County Com	122	_	Gravel		X	
GOVIEN COUNTY COM	32		C/44			X
S Address of Well Site Same	33		Course Si	and	X	
City Emmett	62	77	Blue SAM	10	X	
(Give at least name of road + Otstance to Road or Landmand)	77	79	Blue ClA		_	X
LtBlkSub. Name					_	
Lt Sub. Name						$\sqcup$
4 PROPOSED USE.					_	
4. PROPOSED USE:  ©:Domestic □ Municipal □ Monitor □ Imigation					-	
☐ Thermal ☐ Injection ☐ Other					_	$\vdash$
					-	$\vdash$
5. TYPE OF WORK  New Well Modify or Repair Replacement Abandonment			RECE	INED	-	$\Box$
6. DRILL METHOD		1_	11.0	C-0015	<del></del>	1-1
☐ Mud Rotary ☐ Cable ☐ Other			SEP 1	דמם כ		$\vdash$
The state of the s			No.	Was Handress	<del> </del>	H
7. SEALING PROCEDURES			Cobstants o	-	┼—	+
SEAL/FILTER PACK AMOUNT METHOD					┼	H
Meterial From To Sacks or Pounds					┼	$\vdash$
Ben. te 0 20 200 Pour.		-			-	+
		+			+-	1-1
		+-		ECEIVED	+-	1-1
Was drive shoe used? YQ,N□		+-	ļ		+-	+
Was drive shoe seal tested? Y O N X How?		-	<del>                                     </del>	IN 1 7 1994	+-	+-1
8. CASING/LINER:	1.7.3	1			+-	+
Dismeter From To Gauge Misteries Casing Liner Welded Threaded	+ + -	+		KTHR REGOURGES VESTERIA REGION	+	H
6 71 72 250 Steel 0 0 X 0	-	+	<del> </del>	Course Inchient	+	H
	<del>     </del> F	मेख (	9 1995		+	$\top$
71		7	. 4 1922		$\top$	$\Box$
Length of Headpipe 4 Length of Talipipe		1	1			
9. PERFORATIONS/SCREENS			T :		T	
Perforations Method	Complet	ad Dav	79:	Me	asural	ble)
Screens Screen Type 304 Statio less	Date: St		41	Completed 5-20		
From To Stot Stop Number Diameter Material Cooling Lines	Date. 3	Tireo M	fey 19,1994	_ completed		
	13. DRI	LLER'	S CERTIFICATION			
12 17 1020 3	I/We certif	y that a	minimum well construc	tion standards were comp	wied v	vith at
	the time th	ne rig w	as removed.			
	Com No.	• D • •	mie Dhinne M	ell DrillEm N	433	7
10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	rım Nam	aner	MIE PHILIPS K	A LILLIANI N		
	Firm Office	1	a_ Elder	P Date 6-	14.	-94
	and		)	y Joans J	, ,	101
control devices: Wall Seal	Superviso	ror On	arotor Da W	7 Date 6//	141	94
	COPOT VISO	. or op	Sign once Firm Oil		1/	

# IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT 0 8 1996 Use Typewriter or Ballpoint Pen WATER RECEIVED WATER RECEIVED

WATER RESOURCES

		1	明二	Ś		
	0	ffic	e Use C	nly		
Insp	ecte	d t	ру			4
Twp		_ 1	Rge	Sec		900
	1/4		_1/4	1/4		_
Lat:	:	:	Long:	:	:	
Air			Flowing	Artesian		

1. DRILLING PERMIT NO.	5-96-4	V-0167-000	11.		L TES	STS:	Lat:	: Long:	:	:	
Other IDWR No. Case +	I Ou Louis				ump	☐ Bailer	Air	☐ Flowing Art	esian		,
2. OWNER:	THE PARTY OF	$\overline{}$		Yield gal	./min.	Drawdown	工	Pumping Level		me	
Name GEM Co BOAR	o of Co	mm13510NERS	$\vdash$	40		-			4	MR	S
Address 411 THIRD ST			-			<b> </b>					
City Namea	State_	T() Zip_ 83651									
2 LOCATION OF WELL .					p. 7			Bottom hol			to known r
3. LOCATION OF WELL by le			Wat	er Qua	lity test	or comments: 4	2 TRUM	17.5PA/1	5 GA	W5	_
Sketch map location must agree with	written location	n.					_ Depti	first Water Encou	intered	18	/
N			12.	LITH	OLOG	IC LOG: (Des	cribe re	pairs or abandon	ment)	Wa	
Two. 6	N #		Bore	1							
IWP	North #	or South 🗌	Dia.	-	+,"			or Quality & Temper	ature	Y	N
Rge	East 🗆	or West	12	10	1/	TOP SOIL	GRA	+vel		_	
Gov't Lot	10 acres	14 ALE 1/4 (1) 1/4	17	+:	16	DK BRO	UN C	LAY-VERY	HARD		
Lat: :				16		SAND	7			_	
S	A 100 CO CO CO CO CO CO CO CO CO CO CO CO CO	ng: A sil	8	118	52	SAND	CLA	1 - SOFT		_	
PN /TORNISON STATE	Site_UPIC	K. ASSGULCH	1	52	65	SAUD -	COA	256		_	
RD (TRANSFER SHU) (Give at least name of road + Distance to Road or Lan	City_	EmmETT	1	65		CLAY					$\Box$
			H	172.	120		COA	266			_
LtBlkSub	. Name		H	izu	1	CLAY					
4 1105			H	121	124		COD	RSE			_
4. USE:			H	1124	-	CLAY					
	☐ Monitor	☐ Irrigation	H	125	140	SAND W	cury	Pes-sam	٤		
	Other		H	140		SANIC	X C	Del			
5. TYPE OF WORK check all tha	t apply	(Replacement etc.)	H	147		CLAY					
New Well   Modify   Ab	andonment	Cother	H	158	_		> -	SAME			
6. DRILL METHOD			1	162							
Air Rotary 🗆 Cable 🗆 N	Mud Rotary	Other	1	168		SAND !			5		
7. SEALING PROCEDURES			H	177		SANDY					
SEAUFILTER PACK	AMOUNT	NETTION .	H	181	188			Correse		*	
Material From To	Sacks or	METHOD	1		194		LAY	- COARS	<u>e</u> .		
	Pounds	0.000	H		201	CLAY					
BENTONITE 0 18	900#	OVER BORE	H	_	204			4			
			H		214	SAUL				44	
West discount of the second			H		242	-			_	$\perp$	$\Box$
Was drive shoe used? ★Y □ N Show Was drive shoe seal tested? □Y □N	e Depth(s)		H	242	244	SAN	D - 5	AME_	_		
8. CASING/LINER:	HOW?		H		260						
			$\rightarrow$		366	SAN	D	SAME.			_
	aterial Casin		1		277		LAY				
0 12 720 ,25 31	EE.L.		H		287	CLA	1	MICE	_	_	
			1	100	290	SAND		MICROFIL	MAL		
Longth of Handrice			1	240	300	CLAY	_SA	JOY	TEU		
	ength of Tailpi	pe	H	300		CLAY		ANZIS 6 19	00	_	
9. PERFORATIONS/SCREENS	S		H	305	308				30	_	$\perp$
Perforations Method		RECEIVI	4		-		NUE	Δ			$\Box$
Screens Screen Type			7 86	mpleted	Depth	945			(Measu	ırable	)
From To Slot Size Number D	ameter Materia	Casi QCT Li2-8 19	oc Da	te: Star	ted	7-1-96		completed 7-18	5-91	2	_
) I a	Tarrotor Wateria										
NONEL		Department of the co	13.	DHILI	LER'S	CERTIFICAT	rion				
10014		Department of Water Re	the ti	me the	that all	minimum well con removed.	nstruction	standards were o	omplie	d with	at
			u10 ti	me me	ily was	removed.	)	*			
	70	¥	Firm	Name	AD	Amsouti	me	Deklingin	- Na ()	UL.	77
10. STATIC WATER LEVEL O	R ARTESI	AN PRESSURE:		1	7		B	COMPANY	11 INO.	13	+
690 ft. below ground Artesian	n pressure	lb.	Firm	Official	4	un (P	Lan	Son Date B	-7 -	-9	1
Depth flow encountered	ft. Des	cribe access port or	and	-		1	CAN IN I	JUNE Date (	49		
control devices:				rvisor o	or Opera	TR. Note	BVS	WW Date			
					open	(Sign once if I				-	
						(- g., o., co ii i	Omodi	w operator)			

Form 238-7 3/95

### IDAHO DEPARTMENT OF WATER RESTEDENCE

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen OCT 0 8 1996

	De	7	2	0)		2
Inspe			e Use C	nly	-0.247	
Twp_			Rge	_Sec_		
	1/4		_1/4	1/4		
Lat:	:	:	Long:	:	:	
□ Air		C	Flowing	Artesian		200

1. DRILLING PERMIT NO. 65-96-W-0167-000	11. WELLWESTER REGION  Pump Bailer Air Delowing Artesian	
2. OWNER: Co BOARD OF Commiss	Yield gal./min. Drawdown Pumping Level Time	
Address		-
OnyStateZIP	Water Temp Bottom hole temp	
3. LOCATION OF WELL by legal description:	Water Quality test or comments:	
Sketch map location must agree with written location.	Depth first Water Encountered	
N .		Vater
Twp. Northes or South	Bore Dia. From To Remarks: Lithology, Water Quality & Temperature Y	N
Rge East □ or West 🖳	8 308 317 CLAY	
Sec. 28 , 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4	( 317 333 BLUE CLAY	+
Gov't LotCounty	) 333 342 SAND CLAY - SUPER SUFT / 342 375 SAND - COARSE	+
S Address of Well Site	378381 SANDY CLAY	-
City	381 387 SAND	+
(Give at least name of road + Distance to Road or Landmark)	[ 387 393 ] CLAY	
LtSub. Name	1 393 403 BLUE CLAY	
	403 422 BROWN COARSE SAND BLUE	Chapt
4. USE:	422 424 BROWN CLAY	+
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation	424 434 SAND-COARSE 434436 CLAY	+
☐ Thermal ☐ Injection ☐ Other	436 442 SAND - COARSE	+-1
TYPE OF WORK check all that apply (Replacement etc.)  ☐ New Well ☐ Modify ☐ Abandonment ☐ Other	1442455 CLAM	
5. DRILL METHOD	1 455 462 SAND /CLAY	
☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other	462 464 CLOSY SAND	
T OF AL INO DECOURS	HUHAD SAND CLAY	44
7. SEALING PROCEDURES SEAUFILTER PACK AMOUNT METHOD	1470 480 GLAY SAND	+
Material From To Sacks or	480 490 SAND-CLAY	+
Pounds	498 520 SAND V/SMALL CLAY LAYES 4	COM
	1520 522 CLAY	1 2
	522 532 SANO	
Was drive shoe used? □ Y □ N Shoe Depth(s)	532534 CLAY	$\Box$
Was drive shoe seal tested?   Y   N   How?	53V 552 SAND	$\perp$
B. CASING/LINER:	1552 570 SANDY CLAY	+-1
Diameter From To Gauge Malerial Casing Liner Welded Threaded	1570 580 SAND - FINER BUT CLARGE	+
	1594 SANDY CLAY	
	6941002 CLAY	
Length of Headpipe Length of Tailpipe RECEIVE	1602 642 SAND CLAY STEROFT ME	
9. PERFORATIONS/SCREENS	T WIND TOO SHUBS CELTY	4
Perforations Method 0CT 2 8 199	oc Unavision of the	
Screens Screen Type 501 2 0 133	(Measure	ible)
From To Slot Size Number Diameter Malerial Department of Water Res	Date: StartedCompleted	
0 0	13. DRILLER'S CERTIFICATION	
	I/We certify that all minimum well construction standards were complied	with at
	the time the rig was removed.	1-
10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	Firm Name HAMEN TULE OF TIME No. 9	57
ft. below ground Artesian pressurelb.	Firm Official Pairs / Standardate 8-26	-96
Depth flow encounteredft. Describe access port or	and /	
control devices:	Supervisor or Operator W DS 12 Paluo Cata	
	(Sign once if Firm Official & Operator)	

Form 238-7 3/95 05756

### IDAHO DEPARTMENT OF WATER RESERVEDS

WELL DRILLER'S REPORT
Use Typewriter or Ballpoint PQCT 0 8 1996

	0	ffic	e Use C	nly	
Insp	ecte	d	оу		
Twp		_	Rge	_Sec_	_
	1/4		_1/4	1/4	
Lat:	:	:	Long:	:	:

1. DRILLING PERMIT NO. 65-96 W. 0167.00	11. WATER		RCES DESN Bailer	Lat:	: : Long:			
			Drawdow		Pumping Level		me	
2. OWNER: OF BOARD OF COMMISSIONERS	Tield galon	4111.	Diawdow		rumping Laver		110	
Address								_
CityStateZip								
					Bottom	hole temp	-	
3. LOCATION OF WELL by legal description:	Water Qualit	y test o	or comments:					
Sketch map location must agree with written location.	12 11740	LOCI	C1 OC1 /0	Dep	th first Water End	countered		
N .		LUGI	C LUG: (D	escribe r	epairs or aband	onment)	Wat	ter
Twp. 6 North or South	Bore Dia. From	То	Remarks: Litt	hology, Wa	ater Quality & Tem	perature	Y	N
Rge. / East [] or West 🔀	8 700	714	BLUE	CLAL				
Sec. 2 7 , 1/4 1/4 1/4 1/4 Gov't Lot County 40 acres 160 acres	5 714	724		D.U				
Gov't Lot County 40 acres 160 acres	1724	739	SANDY	CH	34			
Lat: : Long: : :	1/ 139		SAN	DY CI	AY-MOSTLY	LSAU	2	
Address of Well Site		786						
(Give at least name of road + Distance to Road or Landmark)	186	794	CLA	ty				$\vdash \vdash$
			SAND		<u> </u>		- 14	5-
tBlkSub. Name	1 306	622	SA	713Y 1	CLAY BUE	dian	×	-27
	/ 84D	640	SAN		DUE	1144	典	15
4. USE:			BUILE				~	10
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection ☐ Other		872	SAL				X	10-
	1 872	890	BULLEC	LAU				-
5. TYPE OF WORK check all that apply (Replacement etc.)  New Well Modify Mandonment Other			SAN				×	15
B. DRILL METHOD	1 913	933	BLUE	CLAY				
☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other	9.33	945	SAW	>-Co	ARSE		X	40-
7. SEALING PROCEDURES								
SEAL/FILTER PACK AMOUNT METHOD  Material From To Sacks or								$\vdash$
Material From To Sacks or Pounds								Н
								-
								$\vdash$
Was drive shoe used? □ Y □ N Shoe Depth(s)								
Was drive shoe seal tested? □Y □N How?								
8. CASING/LINER:								
Diameter From To Gauge Material Casing Liner Welded Threaded								
	4-6		VED					_
	THE C	V E 1	AED		MICRO	EU A am		
	OC.	2 0	1996		MICRO	CILME	<b>P</b>	-
Length of Headpipe Length of Tailpipe Length of Tailpipe	- 06	4	1330		DECO	6 1000		$\vdash$
9. PERFORATIONS/SCREENS	Belevie	and 141-	ter Resources		02011	n 1339		
☐ Perforations Method	Completed				, , , , , , , , , , , , , , , , , , , ,	(Mea	curah	Ja)
C Ocident Type	Date: Star			•	Completed	(INBS	surab	10/
From To Slot Size Number Diameter Material Casing Liner	Date: Otal							_
	13. DRIL	LER'S	CERTIFIC	CATION				
				Il construc	tion standards we	ere compl	ed w	ith at
	the time the	ng was	s removed. —	<b>)</b> .	d.' .		,	
	Firm Name_	HUA	usal F	TUPO	Deury	_Firm No.	45	57
10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	G	3	-	1		0 -	,	1
ft. below ground Artesian pressurelb.	Firm Officia	1	ava C	100	endon Date	8-20	2	16
Depth flow encounteredft. Describe access port or	and	20070	1,5	TY F	Drywen.			
control devices:	Supervisor	or Ope		<b>JUX</b>	Day Day	8		
			(Sign or	nce if Firm Of	ficial & Operator)			

## NOV 1 8 199" WELL DRILLER'S REPOR

				Point	Pе
NOV	1	5	1993		

	RESOURCE						
1. DRILLING PERMIT NO Other IDWR No	63- 93	- W- 0619 - OOO					
2. OWNER: Name <u>MARK_LYNN</u>							
Address 6500 CHAPPARRAL		18					
City EAGLE	St	ate <u>ID</u> Zip <u>83616</u>					
3. LOCATION OF WELL by legal description:  Sketch map location must agree with written location.							
T. <u>5N</u> ER. <u>1W</u> Sec. <u>3</u> Gov't Lot	East	□ or WestXX					
Address of Well Site 6500 CHAP							
(Give at least Direction + D							
Lot NoBlock NoS	Subd. Name	e					
4. PROPOSED USE:  △ Domestic	Other						
☐ Mud Rotary XXAir Rotary	XX Cable	☐ Other					
7. SEALING PROCEDURES							
SEAL/FILTER PACK	AMOUNT	METHOD					
Material From To	Sacks or Pounds						
BENT & CEMENT 20017	d	POURED					
CEMENT & BENT 17015	d	PUMPED					
BENT & CEMENT 15014	d	POURED					
SURFACE SEAL AROUND	12" TO	20'					

 0	IAI	EI	1 -	TE	CT	S:

Yield gal./min.

ELL TES	STS:	Department	of Water Resource	భ
☐ Pump	☐ Bailer	☐ Air	☐ Flowing Ar	tesian
ild gal./min.	Drawdov	wn	Pumping Depth	Time
TECT				

NO TEST			
Temperature of water	_Was a water	analysis done?	Yes□ No□
By whom?			
Water Quality (odor, etc.)_		***	
Bottom Hole Temperature_			
11. STATIC WATER	LEVEL:		
395 ft. below surface	Depth arte	sian flow fou	nd
Artesian pressure	_lb. Describe	access port	
Describe Controlling De	vices:		

#### 12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	То	Remarks: Lithology, Water Quality & Temperature	GPM	sv
14	0	5	TOP SOIL		
14	5	25	SAND & GRAVEL		
12	25	40	SANDY YELLOW CLAY		
12	40	60	SANDSTONE		
12	60	79	LOOSE SAND		
12	79	180	SANDSTONE		
12	180	235	COURSE SAND		
8	235	240	SANDSTONE		
8	240	250	SAND & PFA GRAVEL	:	
8	250	300	SANDSTONE		
8	300	320	SANDY BROWN CLAY		
8	320	340	SANDSTONE		
8	340	350	SANDY BROWN CLAY		
8	350	380	SANDSTONE		
8	380	385	SAND		
8_	385	400	SANDSTONE		
8	400	410	SAND & GRAVEL		
8	410	440	SANDSTONE		
8	440	450	BROWN SAND	2	39
8	450	180	SANDSTONE		39
8	480	185	FINE SAND		39
8	485	540	BLACK SANDSTONE		39
8	540	550	COURSE SAND		39
8	550	570	COURSE SAND & GRAVEL		39
8	570	590	COURSE SAND		39
8	590	500	COURSE BROWN SAND		39
8	600	520	BROWN SAND		39

### 8. CASING/LINER:

Diameter	From	То	Guage	Casting	Liner	Steel	Plastic	Welded	Threaded
12	+1	79	250	X		又		又	
88	+2	551	250	x		9		又	
6	523	543							
,	E72	673							

#### 9. PERFORATIONS/SCREENS

Was drive shoe seal tested? YO NO How?\_\_\_

	remoration	15	Method		
X	Screens	100	Type_304	Material	STAINLESS

From	То	Slot Size	Number	Diameter	Tele/Pipe Size	Casting	Liner
543	563	.040	.7/72 — H238	6	PIPE		匁
563	573	.030		6	PIPE		叉

#### 13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with a the time the rig was removed.

Firm Name_BILL_	DOTY DRILLING CO.	1NC_Firm No. 42
	- 1 the	11 1 05-
Firm Official	The f.	
and	TO RESILIE	·# 1 6-
Supervisor or Operate	Jest Winu	Date //-/-/
	Kign once if Firm Official & Opera	itori

		_
Form 238-7 IDAHO DEPARTMENT OF WATER RESC 6/02 WELL DRILLER'S REPORT	Inspected by	_lei
1. WELL TAG NO. D	Twp RgeSec	
DRILLING PERMIT NO.	12 WELL TESTS: Lat: : Long: :	
Water Right or Injection Well No.	12 1121-1213	
	Pump Bailer Air Flowing Artesian  Yield gal./min. Drawdown Pumping Level Time	
2. OWNER:	175 6 hou	w.c.
Name Spring Valley Development LLC Address 485 F. Riverside Dr	0 100	45
City Eagle State Id Zip 8 3 to 16		
on suite	Water Temp. Bottom hole temp.	
3. LOCATION OF WELL by legal description:	Wates Quality test or comments: Trop. 5 PN 7.5	
You must provide address or Lot, Blk, Sub. or Directions to well.	Oyams 2 Depth first Water Encounter	50
Twp. 5 North X or South □	12   1700 000 100 100 100 100 100 100 100 10	Water
Rge East ☐ or West ☐ Sec 1/4 SE 1/4 NW 1/4	Gara I	
Gov't Lot County A Boos 50 axes	Dia. From To Remarks: Lithology, Water Quality & Temperature Y	N
Lat: : Long: : :	Q 0 10 Sandy soil	
Address of Well Site I mule She of Willow Creek Rd	" 10 96 tan alay	
City Eagle	" 96 105 blue clay	
LtBIK:Sub. Name	8 105 134 blue clay	
	" 134 140 Anday	+-
	170 175 peu grater 1 ceut	+
4. USE:	" 195 360 Haray sand & Clay	-
□ Domestic □ Municipal □ Monitor □ Irrigation	" 360 367 lodge sand & clay like Pea grand	+-
☐ Thermal ☐ Injection ☐ Other	" 367 505 Fine & coarse sand	-
5. TYPE OF WORK check all that apply (Replacement etc.)	" 505 540 larger pea gravel	+
New Weil  Modify  Abandonment  Other	" 540 540 peagravel ut large Sand gan	1/2
	" 590 595 quartz sand	<
6. DRILL METHOD:	" 595 605 Finer for Sand	
Air Rotary  Cable Mud Rotary  Other	* 605 620 quartz sand X	
7. SEALING PROCEDURES	" 620 640 Finer sand x	
Seal Material From To Weight/Volume Seal Placement Method	" 640 645 quartz sand X	
Bentonil 0 105 3/50# Overbore	" 645 655 Buantz sand & some pao grave x	
	" 655 660 gravel & quartz sand X	4-
Was drive shoe used? XY \(\Gamma\) Shoe Depth(s) 7.38	" 670 680 big sand X	_
Was drive shoe seal tested? ☐ Y 🕍 N How?		
8. CASING/LINER:	CC CS DIQ 3074	+-
Diameter From To Gauge Material Casing Liner Welded Threaded		
8' +2 738'250 Stul 50 3 50 0	" 730 740 bid sand X	
	The diagrams	
	Due to heaving sand - a mixture of	
Length of Headpipe Length of Tailpipe	Sand & cement was placed from 730 to	740
Packer DY DN Type		
9. PERFORATIONS/SCREENS PACKER TYPE	RECEIVED	
Perforation Method STAR PERF. 4 ROWS @ JOHNT 90 PERF	8	
Screen Type & Method of Installation NOVE PER ROW	MAR 1 9 2004	
From To Slot Size Number Diameter Material Casing Liner	Completed Depth 730 WATER RESOURCESSU	<u> </u>
560 580 1/4 360 8° 250 WW	WESTERN REGION	
580 600 14 360 B" CASWELL &	Date: Started	OY_
600 620 1/4 360 8° C	14. DRILLER'S CERTIFICATION	32
620-640 1/4 360 B" 3 ×	We certify that all minimum well construction standards were complied with at	the
Fitter Material From To Weight / Volume Placement Method	time the rig was removed.	<i>:</i>

155_ft below ground	Artesian pressurelb.	
Depth flow encountered	tt. Describe access port or control de	vices:

Driller or Operator II

Operator I\_ Date Principal Driller and Rig Operator Required.

Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

								Office Use Onl	У		
Form 238-7 IDAHO	DEPARTMENT OF WA	TER RESC	URC	CES			Well ID I				
6/02	WELL DRILLER'S						Inspecte	d by			
							Twp	RgeS	ec		
1. WELL TAG NO. D	0030892	DQ Z					The more than the same of the	4 1/4		_	
DRILLING PERMIT NO.			12 W	FILT	ESTS:			: Long:	-	:	
Water Right or Injection Well No			12 11	∃Pı		☐ Bailer	☐ Air	☐ Flowing Arte	sian		
			[ Y	1eld gal./	1000	Drawdow		Pumping Level	Tin	ne	_
2 OWNER:	, Development L	0	-								-
Name Dring Willer Address 485 E. T	1 10 etter of mark								7.00		
City Fagle	State Ta Zip	23/11/2			-575					e illine	
City	State Zp_	00014	Water	Tomp				Bottom i	nole terre	,	
3. LOCATION OF WELL by le	gal description:								•		
You must provide address or Lot, BI			MAGICI	Cluality	1881 01	COININGINS					
Twp. 5 North		34						Depth first Water	Encoun	ter	_
Rge East			13. L	IIHOL	OGIC I	LOG: (Descr	the repairs of	or abandonment)		Wat	er
Sec. 131	14 SE 1/4 NW 1/4		Bone Dia.	From	То	Remarks:	Lithology, Wa	der Quality & Temper	ature	Y	N
GOVILOR County_	Hda		-	1	-						
Lat: : : Late Address of Well Site   Mile	ong:	L DI									
	200 of Millom de	er ra							-		_
Great Carles of Ital - 3 States to Prood or Lands	_ City <u>Fagle</u>				- i				$\overline{}$		
Lt Blk Sub.	Name		-	- 245						*****	-
	45501 (A100)										-
4. USE:			-				4.5		-		
☐ Domestic ☐ Municipal	☐ Monitor ☐ Imigation				7						
☐ Thermal ☐ Injection	Other test										
5. TYPE OF WORK check all th	at apply (Rep	lacement etc.)						P-11/11			
X New Weil ☐ Modify											
6. DRILL METHOD:											Į.
Air Rotary Cable	☐ Mud Rotary ☐ Other _							-	-		
7 0541 110 00005011050											
7. SEALING PROCEDURES				-	-						
Seal Material From	To Weight / Volume Seal Place	ment Method									
				7						-	
Was drive about yeard?	EN Chas Darett(s)							<del></del>	-		
Was drive shoe used? ☐ Y Was drive shoe seal tested? ☐ Y	☐ N Shoe Depth(s)										
vias drive since sear lested? 1	N How!										
8. CASING/LINER:											
Diameter From To Gauge	Material Casing Liner	Welded Threaded							- 1		
	Ü U										
	ט ט										
Length of Headpipe	Length of Tailpipe			V.							
Packer ∐Y ☐N Type _								- AM 7.7			
9. PERFORATIONS/SCREEN	C DACKED TVDE										
Perforation Method STAR PER	E. IL RAILS ON LAWT	90 NODES									
Screen Type & Method of Installatio		60)									
	mber Diameter Material Casing	,									
	60 8" . 250 WALL &		Con	npleted	Depth				(Me	asural	ole)
11- 100 111	60 8" CASWED BY		Date	e: Star	ted			Completed			
680 700 114 2	D B" > 8	CJ .				EDTIFICATIO					
74x - 720 1/4 3	40 BH 3 X	20.000				ERTIFICATIO		tandards were comp	alled with	at the	
Filter Material From	To Weight / Volume Placeme	ent Method			as remi		o Buulii S	anda were will			
720-730	House to the same of the s				A		D	11:13		Lic	7
			Comp	any Na	me/10	omson	CMILL	5 Willing	Firm No.	7-	
11. STATIC WATER LEVEL OF	ADTECIAN PRECURE		Princi	nal Drill		Zesir	Teda	& Drilling	3.15	-64	1
			and	Pai Dell		No.	11.				
	rtesian pressure	vince		r or Ope	erator II	Dave	Adan	nSON Date	3.15	-00	_
, should let	personal access port of contact de		^-				53				
			Opera	ator I		Principal Drift	er and Rio O	perator Required.			
								permitted to the state of the s			

Operator I must have signature of Driller/Operator II.
FORWARD WHITE COPY TO WATER RESOURCES

=orm 238-7 5.02

### IDAHO DEPARTMENT OF WATER RESOURCE WELL DRILLER'S REPORT

				Office Uses Only				
		4		Office Use Onl	У			
ES		Well ID No.						
A CONTROL OF			Inspe	cted by				
			Twp_	S	ec	-		
				1/4 1/4	1/4			
	OTC.		Lat:	: : Long:	: :			
ELLTE		C Deller	□Ai	Flowing Arte	esian			
Pur		Bailer		Pumping Level	Tim	e		
ield gal./m	in.	Drawdo		207	41	shr		
13			4'	701		2		
							- 1	
				Dettom	hole temp			
Temp.				Bottom	Hole territ			
	test or o	comments:						
Quanty				Depth first Wat	er Encoun	ter _		
	2010.1	OC: /Dee	oribe ren	airs or abandonment)		Wat		
ITHOL	OGIC L	.UG: (Desi	cribe rep	ans or approx			N	
From	То			y, Water Quality & Temp	erature		X.:	
0	10	tonso	il. s	andy clay			The state of the s	
	27	rand	brou	n clay			X.	
10							Χ.	
27	_60	ian g	, here	vn clay w/ gr	ay st	leat	SX.	
60	90	sandy	DALOL	on cury on 3r			X	
90	104	gray	clay	0			X	
104	110	1	· Luci	IN OVALI	bu cal.	1	X	
110	155	a a a a h	10 10	nd wil army so	rears	1	1	
155	198	COAL	so to	meacum suna	w/	-	+	
433	170	-	Paux	treaks		-X-	+	
-	+		into	and		X	-	
798	210	H-reda	ish s	and along sta	oabs	X		
210	243	fine	_sana	w/ clay str	- aabs	X		
243	265	sand	w/u	ood, clay st	reurs-	1	X	
265	430	1 cipt	וו סאם	4 blue clay		-		
	530	stin	bu an	ay blue clay			X	
430	700000	land.	shal	20			X	
-530	53	- naru	. L.D.	00011			X	
531			peuc	e clay			X	
780	78	1 haro	<i>i</i> shai	2e			1	
781	80	6 grai	j bliu	e clay				
1000000								
*						-	-	
						-	-+-	
V	-							
-	+	-						
`	1				S. B. V.			
	_/			710 g 14 14214				
	`	tonno	ed wi	th chips 20	3123		T	
		201010			-			
						-+		
	-							
-+-		-					-+	
				d 263 agrad		(Mea	surabi	
Comple	eted Dep	oth 806_d	rille	d, 263 cased				
		-6/			ted $6/2$	5/0	4	
			CATION				and the state of t	
14. DRI	LLER'	S CERTIFI	CATION	struction standards was	e complied	with	at the	
I/We cer	tify, that	all migimum	well con	struction standards wer				
time the	rig Was	removed.		)	•	8		
			1.	dans 1	Èir	m No.	153	
Compan	y Name	-Steve	ens &	sons /				
	I Della-			14/	Date	6/2	18/0	
Principa	ıı Driiler	880		1//	- W			
and Driller o	r Opera	tor Man	7	Alland	Date	•		
Dilliel 0	. Opera	SIVA	1	LASILITA	Date	13		
Operato	or I	- 6	6/	1771	_ Date			

Particular Permit No. \$15596  Vater Right or Injection Well No. 386274  2. OWNER:  NameSUNCOR_ Andress485_E_Riverside_Dt#300  OityEagle_  3. LOCATION OF WELL by legal description:  You must provice address or Lot, Rik, Sub. or Directions to well.  North or South   12. WELL TESTS.    Pump   Bailer   Air   Flowing Artesian     Pumping Level   Time     Yield Sal/min.   Drawdown   Pum					1/4	1/4	_1/4	
Asser Egypt or legician vise floor wheel to 3,36274.  Some SUNCOR  Asser SUNCOR  Asser SUNCOR  Asser Suncors  Asser Egypt Sub or Directions to well  Top 2 North or South Top 20 83616  Top 2 North or South Top 3 North or South Top 2 North Top 3 No	1. WELL TAG NO. D 0031492	40 WELLT	ESTS.	La			1 1	
2. OWNER  SUNCOR  SUNCOR  SUNCOR  135 E. R. R. R. L. R. L.	DRILLING PERMIT NO815596			□ Bailer □				
207   Agglocation   15.5   Excises a cide   Date   State   10   20   83616   Water   State   10   20   20   83616   Water   State   10   20   20   20   20   20   20   20	Water Right or Injection Well No386274				Pumpin	g Level		
SUNCOR  SUNCOR  Susceptible  Susceptible  Water Term	o owner:	-		14'	21	27	41/2	in/i
Valer Temp	SULICAR	-45						
A LOCATION OF WELL by legal description:  **Mater Tomp.**   Address 185 E Riverside Dr. #300								
3. LOCATION OF WELL by legal description:  **Murmail progres address of Long is, but, or December level.**  **Work or South   South	State ID Zip 83616	Water Temp				Bottom ho	ie temp.	(
The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper address or Los gas Sab or Directions to well.  The mast egyper well in the sab of the master address of Well Sab or Los gas Sab or Directions.  The mast egyper well in the sab of the master address of Well Sab or Sab	, and description:	Water Qualit	v test or	comments:				
Sec	3. LOCATION OF WELL by legal description.	Mater Goun	,		De	pth first Water f	Encounte	er
Best XX   Style   West   Style   No.	You must provide address or Lot, Bik, Sub, or Directions to West	12 LITHO	LOGIC	OG: (Describe	repairs or aba	andonment)		Water
Solve County Ada Long: Long: Long: City Fagle Coarse Sand Wy Goarse Capy Coarse Sand Wy Capy Streaks City Fagle City Fagle City Fagle City Fagle City Fagle City Fagle City Fagle City Fagle City Fagle City Fagle Coarse Sand Wy Capy Capy Coarse Sand Wy Cap	TWP West []		Louis .		- In and Mater Of	uality & Tempera	ature	YN
Address of Well Site   mile SW of Willow Creek Rd   27 60 tan gray clay   day streats   do   90   and y brown clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   90   gray streats   do   90   90   gray streats   do   90   g	1/4 C/W 1/4 N/F 1/4		То					
Address of Well Site   mile SW of Willow Creek Rd   27 60 tan gray clay   day streats   do   90   and y brown clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   104   gray clay   do   90   90   gray streats   do   90   90   gray streats   do   90   g	Govitt ct County Arta	8 0	10	topsoil,	_sandy_c	Lay	-	
City Eagle  City Eagle  City Eagle  Domestic   Municopal   Monitor   Irrigation   100   110   155   198   Coarse sand w/ gray streaks   155   198   Coarse s	Long:	-0-	27	sand by	cwn clau	4		
USE:   Domestic   Lunicolat   Monitor   Irrigation   155   Coarse   Sand w  gray streaks   1.0   1.55   Coarse   Sand w  gray streaks   1.0   1.55   Coarse   Sand w  gray streaks   1.0   1.55   1.0   1.	Well Site to mile SW of Willow Creek Ra		20	4	// 711		+ +	
1. USE:   Domes*c	City Layre	60	90	sandy by	cown_clay	y w/ gray	Jan	Pules
4. USE:   Domestic   Aunicosal   Monitor   Irrigation   Thermal   Irigiction   Xyther   test #9   110   155   coarse sand w/ gray streaks   17   Thermal   Irigiction   Xyther   test #9   198   coarse to medium sand w/ clay streaks   X   X   X   X   X   X   X   X   X	Gueral east name - Declare to Mode of Automotive		1104	aray cla	14			
4. USE:   Domes**C	Division of the second of the	- 104	1 4 4 0	1 . minder hi	HOUND CYA	y	aghs	
USE:   Domesto		110	1155	DAGHAD.	rand w/	gray suu	laus.	
Domestic   Taumicipal   Mountain   The Inspection   Total #9	4. USE:	155	198	000410	to meall	m_saria_w,	1	X
Therms   Injection   CAPITAL    Therms   Chiefcold   CAPITAL    Therms   Capital   CAPITAL    Th	Domestic Liverinoiper			clay	_streaks			
State   Type OF WORK check all that apply   (Replacement etc.)   Type OF WORK check all that apply   (Replacement etc.)   Type OF Work   Type   Abandonment   Other   Type   Ty	! Illeling illosus.		210	reddish	sand	1 1 + + 0.0	bs	
Seal Note   Season	- TVDE OF WORK check all that apoly (Replacement etc.)	210	243	3 fine sa	nd w/ ce	egy soten	abs	
6. DRILL METHOD:  Air Rotery   Cable   XMud Rotary   Other    7. SEALING PROCEDURES  Sou Via Price   From   To   Weight / Youther    Sou Via Price   From   To   Weight / Youther    8. CASING/LINER:    Seal Placement Method   Artesian pressure   In    10. FILTER PACK   From   To   Weight / Youther    11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:    10. June   Logit   Describe access port or control devices:    Date   Date   Date   Date    Date   Date   Date	5. TYPE OF WORTH Check and Department Other	- 243	3 26	5 sand w/	_wood, c	elay sou	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
7. SEALING PROCEDURES  Seat vil real from to Weight / Volume Seat Placement Method Seat	XX	26!	5 43	o silty 9	ray beur	is of all		
7. SEALING PROCEDURES  Seat Will rest From To Weight / Yolume Seet Placement Method Phot. Ann. Completed Seet Placement Method Phot. Ann. Completed Seet Placement Method Phot. Ann. Completed Seet Placement Method Phot. Ann. Completed Seet Placement Method Phot. Ann. Completed Seet Placement Method Phot. Pho	6. DRILL METHOD:	43		o sticky	gray ou	le cruy		
SEALING PROCEDURES  Seal Number   From   To   Meight Volume   Seal Placement Method	Air Rotary Cable XXMud Rotary Other		0 53	1 hard st	lace -			
Seel Williams   From   To   Weight   Volume   Placement Method	A PROCEDURES	1 50.50	1 78	0 gray bl	ne ceny			
bentanite ghout215 0 300 gal pumped  bentanite ghout215 0 300 gal pumped  Was drive shoe used? IY N Shoe Depth(s)  Was drive shoe seal tested? IY N How?  8. CASING/LINER:  Timese for To Gauge Material Casing Liner Welded Threaded  8." +2. 235 250 Atcel XX XX XX XX XX XX XX XX XX XX XX XX XX	7. SEALING PROCEDURES  To Weight / Volume   Seal Placement Method	78	0   78	1 hara st	Puc alau			
Section   Sect	Seal Miller 1 1950 and pumped	$-\frac{78}{}$	1   80	6 gray o	ine cary			+-+
Was drive shoe seed lested? Y N How?  8. CASING/LINER:    Elampie		J						
8. CASING/LINER:    Simple   Firm   To   Gauge   Material   XX   XX   XX   XX   XX   XX   XX	bentante ground IV N Shoe Depth(s)	-						+
8. CASING/LINER:    Emmire   Finir   To   Gauge   Material   Casing   Liner   Welded   Threaded	Mas drive shoe seal tested? TY N How?							
Strict   Final   To   Gauge   Material   Casing   William   Final   To   Weight / Volume   Placement Method								
Silicate   Final   To   Gauge   Material   XX   XX   XX   XX   XX   XX   XX	Casing Lines Meldes Times	aded						+
### 12.5   253   250   Atcel   XX   Image: State   XX   Image: Sta	Clamater From To Gauge Material Gusting							
Length of Heal sipe	8" +2 235 230 Sacces							
Length of Head line	4" 115 1753 1230 51220			topped	with chi	ps 20 st	ks -	
9. PERFORATIONS/SCREENS PACKER TYPE  Perforation Metriod Screen Type & Method of Installation Ty	Length of Tailpipe			100 101				
9. PERFORATIONS/SCREENS PACKER TYPE  Deprioration Metricod  Screen Type & Method of Installation		-   -						1
Screen Type & Method of Installation Atainless Casing Liner    Size   Type & Method of Installation Atainless Casing Liner								
Screen Type & Method of Installation Atainless Casing Liner    Size   Type & Method of Installation Atainless Casing Liner	9. PERFORATIONS/SCREENS PACKER TYPE	-						
Completed Depth 8 06 dtttted, 2 8 Completed 6/25/04.  235245-30-6" striks XX Date: Started 6/ 104 Completed 6/25/04.  10. FILTER PACK  Filter Maiorial From To Weight / Volume Placement Method time the right at removed.  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  12. 31 4 II. below ground Artesian pressure Ib.  Depth flow encountered 198 ft. Describe access port or control devices: Operator I	Perforation Method	_						
Date: Started 6/ 104 Completed 6/75/104  253 - 263 - 30 - 6" striks XX  10. FILTER PACK    Filter Ma: 2ria:   From   To   Weight / Volume   Placement Method   time the rights removed.	Screen Type & Method of Installation stautes Material Casing Liner			anens drip	Pod 263	cased		(Measur
10. FILTER PACK    Titler Maieriai   From   To   Weight / Volume   Placement Method   time the rigiNas removed.	From Stot Size Number Clarette	Comp	pleted De	ping UB_www	Comy	Completed	612	5/04
10. FILTER PACK    Titler Maieriai   From   To   Weight / Volume   Placement Method   time the rigiNas removed.	7351-2451-301	Date	Started	-6/-/04		Completed	0/6	7-0-1
10. FILTER PACK    Filter Maigrian   From   To   Weight / Volume   Placement Method   time the rigi was removed.    -#8-12-5and   3000#   Company Name   Stoughts   Sons   Firm No. 1:	253263							
10. FILTER PACK  Filter Ma:aria: From To Weight / Volume Placement Method  #8-12-5and- 3000# Company Name Stoughs & Sows Firm No. 1  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  193'4" below ground Artesian pressure  b.		I/We c	ertify that	all widimin well	construction st	andarus were g	-	
Company Name Stoughs & SONS  11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  193' 4". below ground Artesian pressure lb.  Depth flow encountered	To Waight / Volume   Placement Method	time th	ne rigityas	removed.				8
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  193'4". below ground Artesian pressure ib.  Depth flow encountered198 ft. Describe access port or control devices:  Operator I  Operator I  Operator I  Operator I  Operator I  Operator I	Filter Material	Comp	anv Name	Stovens	& Sons	11	—— <b>F</b> irn	n No. L
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:  193'4". below ground Artesian pressureb.  Depth flow encountered198 ft. Describe access port or control devices:  Operator I	#8-12-sand				/ []	// 0	ate	6/28
Depth flow encountered 198 ft. Describe access port or control devices:  Depth flow encountered 198 ft. Describe access port or control devices:  Operator I  Operator I	TO LEVEL OR APTESIAN PRESSURE:	100000000000000000000000000000000000000	pal Driller	-	- 77		102	
Depth flow encountered	Actorian negglife IU.		or Opera	ator y	_///	Arbara.	)ate	<del></del>
periodical Driller and Miles and Mil	1.03 1.411. below ground		J. 3P3	13/1 N.	Last	KIN.	Date	**
	Deptil now encountered	Opera	ator I	all friend D	riller and Allo	pergler program	20	,
					r have sind atty	BADALADA	rator II.	

control devices:\_

## IDAHO DEPARTMENT OF WATER RESOURCES

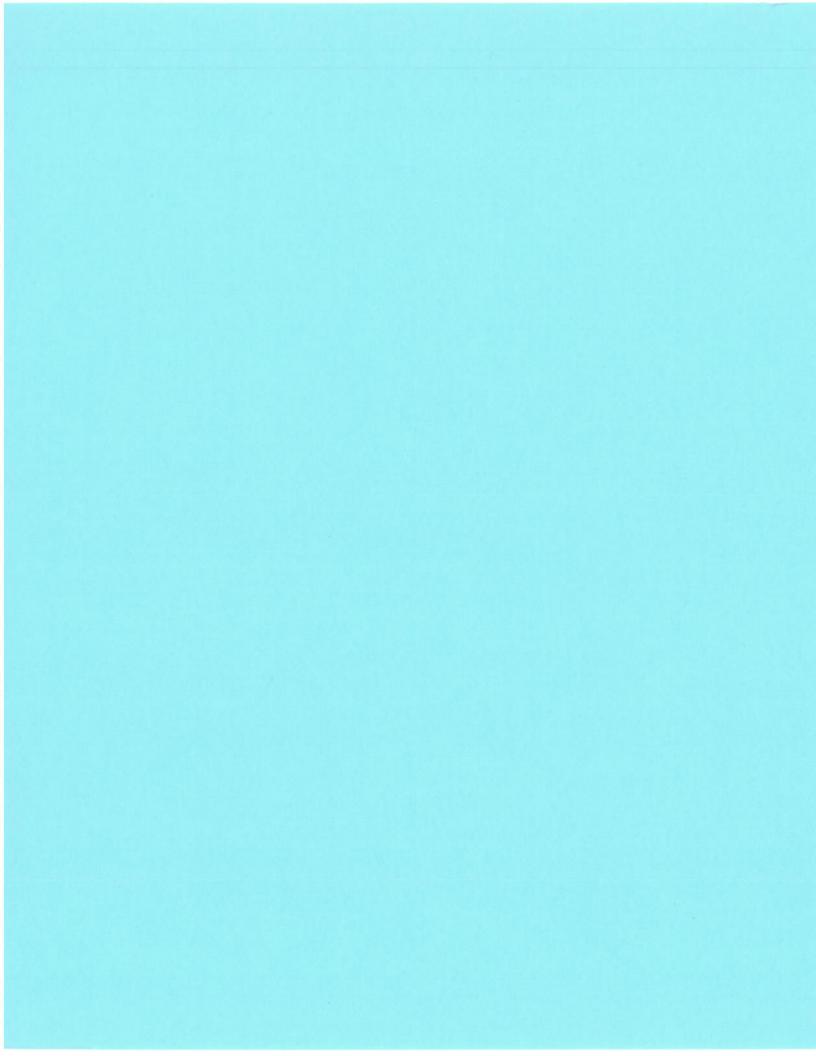
### **WELL DRILLER'S REPORT**

RECEIVED Typewriter

AUG 2 2 1995 Point Pen

1. DRILLING PERMIT NO. 63 - 95 -W - 0611 - 000	11	WELL	TEC		WATER RESOURCES WESTERN REGION		
Other IDWR No.	1.1.		ump	□ Bailer	☐ Flowing Arte	esian	
2. OWNER: ,,		Yield gal.	/min.	Drawdown	Pumping Level	Time	
Name_ HOLMES LUNOT		40		_	235	IHR	
Address P. O. Box 45164						7.77	
City Boise State D Zip 83707							2000
그리아 나는 그 그리아 그는 그 그에 바다가 그 그래요? 하나 맛이 되었다면 하다 나는 내가 되었다. 그는 그리아 그리아 그리아 그리아 그리아 그리아 그리아 그리아 그리아 그리아				- 148			
3. LOCATION OF WELL by legal description:				5 40 Botton	n hole temp. 54°		
Sketch map location must agree with written location.							79
	12.	LITH	OLOG	ilC LOG: (Describe i	renaire or shandonn	nent) .	
N T			1	1	cpuils of abaliconii	nent) \	Water
Twp. <u>5</u> North   or South □	Bore Dia.	From	То	Remarks: Lithology, W	ater Quality & Tempera	ature Y	N
Rge. / East & or West	8	0	2	TOP SOIL			$\top$
Sec. 29 1/4 NE 1/4 SW 1/4		2	18	BEN CLAY		-	+
Gov't Lot County Advaces 160 acres	6	18	67	BEN CLAY			+
GOVI LOL COUNTY 1701	100		76	BRU SANDY	A(A)	-+	+
S	-	67			ULHY		+
Address of Well Site	-	76	115	BEN SAND			$\dashv$
(Give at least name of road + Distance to Road or Landmark)		115	155	BRN CLAY			
(Office at least failth of folio 4 bloom to 1 total of but failth)	_	155	161	SAND			
(Give at least name of road + Distance to Road or Landmark)  Lt Blk / Sub. Name STILLWBU ESTATE	F	161	173	BEN CLAY			
#7	_	173	181	FINE SANG	3		
4. PROPOSED USE:		181	183	BEN CLAY			
■ Domestic		183	184	FING SAND	)		
☐ Thermal ☐ Injection ☐ Other		184	186	HARD BROW.	n CLAY		
5. TYPE OF WORK		186	197	SANDY CLA	Y		
➤ New Well		197	201	DEANGE SA			
6. DRILL METHOD		201	203	V2002 3: 000	7/10/2004		
☐ Mud Rotary ★Air Rotary ☐ Cable ☐ Other		201 / 201	207		AY STAWKERS		$\top$
I Midd Flotary Legality Legality Legality		•	218	SAND	- T GIZINGERS		+
7. SEALING PROCEDURES		218	223				_
SEAL/FILTER PACK AMOUNT METHOD			227	FINE SAND		_	+
Material From To Sacks or		100000	237				+
BENTONITE D 18 300 lbs OVERDRUL		40000	238			-+	+
REMODITE 0 18 300 lbs OVERDRUL						-	+
		<del>श</del> च्य	227	SAND		-+	
	$\vdash$					-	+-
Was drive shoe used? В Y □ N Shoe Depth(s)		-					-
Was drive shoe seal tested? Y N How?	-						+
8. CASING/LINER:							_
Diameter From To Gauge Material Casing Liner Welded Threaded	$\vdash$						_
6" 1/2 239 .25 STEEL X							
	$\vdash$						_
	$\vdash$						
Length of Headpipe 5' Length of Tailpipe /'					-		
9. PERFORATIONS/SCREENS							
Perforations Method WASH - /N					- 1. 5 (75) - 35		
Screens Screen Type STAINLESS STEEL	Con	npletec	Depth	252 FT.	1	(Measura	able)
				9-9-95	Completed_8-1	6-95	,
From To Slot Size Number Diameter Material Casing Liner		o. Oldi			_ Completed_ 6		
<b>65) 60) 10)</b>	13. [	) RII I	ER'S	CERTIFICATION			
				minimum well construct	ion standards were o	omolied	with a
341 251 .30 - 5" STSTEEL "				removed.	Standards Well U	omplied \	iritii d
			- 1		1	274	-
	Firm I	Name_	60	QNSE WELL OR	illing Firm	n No. 4	09
10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:		8	~	1 - 1		_	
141_ft. below ground Artesian pressurelb.	Firm (	Official	$\mathcal{L}$	an 2. Coos	use Date	9-16	-95
Depth flow encounteredft. Describe access port or	and	()	/	0			

Supervisor or Operator\_



. WELL OWNER	7. WATER LEVEL	
Name WILLOW BROOK WATER CORP.	150	
Address PEARL ROUTE EAGLE, ID \$3616	Static water level 150 feet below land surface.	
	Flowing?  Yes No G.P.M. flow  Artesian closed-in pressure p.s.l.	
Orilling Permit No63-92-W-032	Controlled by:	
Water Right Permit No.	Temperature OF. Quality Describe ariesian or temperature iones below.	
NATURE OF WORK	8. WELL TEST DATA	
X) New well	🛱 Pump 🗆 Bailer 🗆 Air 🗆 Other	
☐ Well diameter increase ☐ Abandoned (describe abandonment procedures such as	Discharge G.P.M. Pumping Level Hours Pur	
materials, plug depths, etc. in lithologic log)	30 GAL 325' % HR.	
and a second line		
PROPOSED USE		
☐ Domestic ☐ Irrigation ☐ Test ☐ Municipal	9. LITHOLOGIC LOG	
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection	Bore Depth	Water
□ OtherGRAVEL_CHUTE (specify type)	Diam. From To Material	Yes No
	8 0 20 SANU	\_\\\
METHOD DRILLED	6 20 100 SAND, SOME CLAY	1 3
☑ Rotary	6 100 160 CLAY WITH SAND SEAMS	1 1 1
☐ Cable ☐ Dug ☐ Other	6 160 200 SAND	X,
	6   200   210   BLUE CLAY 6   210   280   SAND WITH SUME CLAY STINGERS	X
WELL CONSTRUCTION	6 280 310 COURSE SAND WITH PEA GRAVEL	$\frac{1}{X}$
	6 310 318 CLAY ISANDY WITH PEA GRAVELL	
Casing schedule: 🖫 Steel 🗆 Concrete 🗆 Other	6 318 340 SAND	
Thickness Diameter From To .250 inches 6 inches + 2.5 feet 237. Seet		
inches inches feet feet	-53	<del>                                     </del>
inches inches feet feet		
inches inches feet feet	1 10) 2 (C) 2 (E) (I)	
Was casing drive shoe used?   Yes   No		
Was a packer or seal used? ☐ Yes Ø No	JUL 2 2 1992	
Perforated? ☐ Yes Ø No		
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun	Department of Water Resources	
Size of perforation inches by Inches	Department ut trace	
Number From To	f	-
perforations feet		
perforations feet feet		
Weil screen installed?  Yes  No	The state of the s	
Manufacturer's name		
Type Model No	131 ( 1500	
Diameter Slot sizeSet fromfeet tofeet		
Diameter Slot size Set from feet to feet Gravel packed? Yes No Size of gravel	JUL 73 A	
Placed from feet to feet		
Placed from feet to feet Surface seal depth Material used in seal: Cement grout	Denartment of X	
🛱 Bentonite 🔲 Puddling clay 🔲	Western Reg. of tar .	
Sealing procedure used:		
Overbore to seal depth		
Method of joining casing:   Threaded Welded Solvent		
Weld  Gemented between strata	5HIPPEDFEB 0 3 1992	
Describe access port	10.	
	Work started 1-9-92 finished 1-14-92	
LOCATION OF WELL	11. DRILLERS CERTIFICATION	
Sketch map location must agree with written location.	I/We certify that all minimum well construction standar	ds were
N	complied with at the time the rig was removed.	
Subdivision Name	BILL DOTY	12
	Firm Name <u>DRILLING CO., INC.</u> Firm No	76
W = = = = = = = = = = = = = = = = = = =	Address CALDWELL, ID. Date 1-31-9:	2
Lot No Block No	83605	
	Signed by (Firm Official)	
S AVA	and	
	(Operator) Roll Joli	
SE , NW , S 17 T 5 NED 1 ED	1	

WELL OWNER CHAPARELL WATER USERS ASSN.	7.	WATE	RLEV	/EL				
	Static water level 157 feet below land surface.							- 1
Address P.O. BOX 507 EAGLE ID 83616	Flowing?    Yes    No    G.P.M. flow							_
63-91-W-088 Orilling Permit No	Artesian closed-in pressure p.s.i.							
Vater Right Permit No. 63-07700	Controlled by:  Valve  Cap  Plug  Temperature  OF, Quality  Oescribe artesian or temperature tones below.							
			Desc	cribe ar	tesian or temperature tone	s below.		_
VATURE OF WORK REPLACEMENT	8.	WELL	TEST	DAT	NOT AVAILA	, LE		- 1
i New well						Other		_
Well diameter increase     Abandoned (describe abandonment procedures such as		Discharge	CPM		Pumping Level	Hours 8	Pumped	-
materials, plug depths, etc. in lithologic log)		n acriting e	G,F,M,		r dinding Caver	1 1100127	umeed	
PROPOSED USE IRRIGATION						-		-
	_							$\neg$
☐ Domestic ☐ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection	9.	LITH		IC LO	G			_
] Other (specify type)	Bore	From		-	Material		Water Yesi N	
REVERSE ROTARY	28	-	10				1 est	140
METHOD DRILLED		Ø	5	TC	PSOIL			x
Rotary   Air   Hydraulic   Reverse rotary		5	10	SE	NDY LOAM			X
Cable Dug Other		10			ND & GRAVEL			X
		25			ND W/ CLAY ST			Y
VELL CONSTRUCTION SEE ATTACHED		55			NE TO MED. S			Y
asing schedule:   XSteel  Concrete  Other					RSE SAND			×.
Thickness Diameter From To		100000000000000000000000000000000000000		1	WN_CLAY			×.
inches inches + feet feet					DIUM SAND DARSE SAND		1 1	÷
inches inches feet feet					ROWN CLAY			Ÿ
inches inches feet feet inches inches feet feet					RAY CLAY		1 1	×
/as casing drive shoe used?  Yes  No					ROWN CLAY		$\dashv$	×
Vas a packer or seal used?  Yes  No	-	100000000000000000000000000000000000000		F	ARSE GOLDEN		1 <del>3  </del>	-
'erforated?					DARSE SAND & DARSE S		T Č	
low perforated?					TE BRN CLAY	1170	- '	×.
ize of perforation inches by inches					DARSE SAND &	PEA GRY.	- ×	_
Number From To feet feet					William Control		$\dashv$	-1
perforations feet feet		-	-				$\dashv$	-1
perforations feet feet								
Vell screen installed?				5			$\perp$	_
ype CONTINOUS WIRE Model No. HEAVY	_			111	中国民工	1	$\dashv$	-1
liameter Slot size Set from feet tofeet	-				·	<del> </del>	$\dashv$	$\neg$
liameter Slot size Set from feet to feet				-424	SEP 9 1991	- ( ÷		
iravel packed? CXYes ONO OSize of gravel 3/8								_
laced from 425 feet to 110 feet urface seal depth 110 Material used in seal: Cement grout		-	-	- 00	quitment of Water Pro-	··· <b>P</b> 35		-1
☐ Bentonite ☑ Puddling clay ☐		<del>                                     </del>	-		Wroters francial Site	•	$\dashv$	
ealing procedure used:   Slurry pit   Temp. surface casing								
CX Overbore to seal depth		<u> </u>		_			$\dashv$	
lethod of joining casing:   Threaded   Welded   Solvent  Weld	-		-	$\vdash$			+	_
☐ Cemented between strata				-				
Jescribe access port 2" PIPE	10		nele esne	etad	9/4/91 finis	رو ام	/14/9	, [
	<u> </u>	***	J F 31.6:	: ted _	7/7/71			_
LOCATION OF WELL	11	. DRI	LLERS	CER	TIFICATION			
Sketch map location must agree with written location.		I/We	certif	y that	all minimum well cor	struction star	ndards wi	ere
N	1				the time the rig was rer			
Subdivision Name		- 12		PET	E COPE DRILL	NG	213	- 1
<del>     </del>			Charles and the same of		E COPE DRILL	_Firm No		- 1
W = E		Addr	ess 65	505	W CHINDEN	Date	9/9/9	1
Lot No Block No					Λ.	V .	8	
X :		Signe	ed by (F	Firm (	Official) Joseph	your .		-
S ADA				ar	nd (/ ' '	'n		
SW SW 9 NO 120				(Oper	rator) Joseph	Joses .		-

Chaparell Water users Assn. P.O. Box 507 Eagle ID 83616 Permit# 63-91-w-088

	welded	wall :	. 250	record	16"casing	"16
286		: 285		-	1	
20		325	8	-	305	
15		350		_	335	
15		375	19,	<del>-</del>	360	
10		395		-	385	
10	9350	425		_	415	

356 total casing

16" Screen record . 40 slot Roscoe Moss Continous wire.

285	_	305	20
325	: <b>-</b>	335	10
350	-	360	10
375	-	385	10
395	_	415	20

70 total screen

426 total screen+casing

UU FEB 1 1967

### REPORT OF WELL DRILLER State of Idaho

### Department of Reclamation

State law requires that this report shall be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

	Size	of di	rilled hole: 8in, Total	
Fill Leach	depth	of '	well: 450 ft. Standing water	
	level	bel	ow ground: 300 ft. Temp.	
Address Star, Willow Creek Road, Hwy. #16	Fahr.	85	° Test delivery:	gpm
	OF		cfs Pump? Bail ump and motor used to make tes	
Owner's Permit No. 3 37384	Size	01 p	dmp and motor deed to make too	•
NATURE OF WORK (check): Replacement agt   [2]	Langt	h of	time of test: Hrs. M	in.
	Drawd	ovn:	ft. Artesian pressure: f	t.
Water is to be used for: Domes, & Irrigation	above	lan	d surface Give flow cf	8
Cable T	or	20	m. Shutoff pressure:	
	Contr	olle	d by: Valve Cap Plug	ہ لیا
(explain)	No co	ntro	1 Does well leak around ca	sing?
CASING SCHEDULE: Threaded Welded X	Yes	Щ	No X MATERIAL 31529 W	Calum V
8in."Diam. from 0 ft. to 390 ft.  "Diam. from ft. to ft.  "Diam. from ft. to ft.  "Diam. from ft. to ft.  "Diam. from ft. to ft.  Thickness of casing: 250 in Material:	אסטים זע	TH	MATERIAL SISSI	OR NO
"Diam. from ft. toit.	FEET	<u>क्रम्प्रस्य</u>		
"Diam. from It. to	0	10	Sandy topsoil	no
Thickness of casing:	-10	14	sand & corse gravel	no *
THICKNESS OF GODELLE.			clay	no
Steel I concrete wood other			sand & clay	
			wet sand	yes *
(explain)			clay	no
PERFORATED? Yes No x Type of	130			no 7es *
perforator used:			Corse wet sand Blueish clay & sand	nO
II he II			Corse sand & brown clay	no
Size of perforations: "by "  perforations from ft. to ft.  perforations from ft. to ft.			Corse sand	ves
perforations from the to it.		_	clay	200
nerforations from ft. to ft.	371	377	sand	<b>788</b>
perforations from ft. to ft.	377	382	clay	70
perforations from ft. to ft. perforations from ft. to ft. WAS SCREEN INSTALLED? Yes No X			sand	yes
Manufacturer's name	387	3927	clay	70_
Manufacturer's name  Type Model No.  Diam. Slot size Set from ft. to ft.  Diam. Slot size Set from ft. to ft.	29=7	450	Sand stone	788
Diam. Slot size Set from It. to It.		-	<del></del>	
Diam. Slot size Set irom It. to It.	_		* Note; Seasonal water	
CONSTRUCTION: Well gravel packed? Yes				
No. Z size of gravel Gravel placed from ft. to ft. Surface seal				
provided? Yes No To what depth?		-		<del> </del>
ft. Material used in seal: Cased through		-		<del></del>
clay				<del> </del>
Did any strata contain unusable water? Yes	-	-		
No. X Type of water:	-	-		
No. Z Type of water: Depth of strataft. Method of sealin	4			
strata off:				
Surface casing used? Yes X No.		-		<del> </del>
Cemented in place? Yes No X				<del>                                     </del>
Locate well in section		+		
Docate well in section		1		
	-	1_		
	Mork	sta	rted: October 1, 1966 ished: October 14, 1966	
			ller's Statement: This well wa	
Sec	dril	led	under my supervision and this	report
	is t	rue	to the best of my knowledge.	
	Name	:_C.	F. Baker	
h	Addr	ess:	Box 41, Middleton, Idaho	
		500000	100	
		ned b	y: A. Poker No. 175 Date: 9 Jan. 19	67
LOCATION OF WELL: County Ada	1			
S 0 4 N 3 4 Sec. 49 T. 5 N/3 R. 1 7/4	-	,	:	
78 -57/ Use other side for	addi	ition	al remarks	
MI -0 // USB O'THE! STITE TOT				

USGS //

Firm Official\_

Supervisor or Operato C

toign once if Firm Official & Operators

and

另口

PIPF

6

563 573

.030

WELL DRILLER'S REPORT

DEPOSITE OF THE PROPERTY OF THE PROPERT

-	1. WELL OWNER		WATER				T		
1	Name MARK LYNN		Static v	water !e	vel _4	leet below lan	d surface.		
	Address 4831 SKYLINE DR. EAGLE, ID 83515	Flowing?							
	Orilling Permit No. <u>63-93-W-0182</u>	Controlled by:							
	Water Right Permit No.	Temperature°F. Quality						_	-
	2. NATURE OF WORK	3.	WELL	TEST	DATA				
	XX New well			200		lailer 🏿 Air 🗆	Other		
	☐ Well diameter Increase ☐ Modification ☐ Abandoned (describe abandonment or modification procedures	-	Discharg			8550 63700			-
	such as liners, screen, materials, plug depths, etc. in lithologic	40	Jischarg	G.P.M.		Pumping Level 500	2 HRS.		1
	log, section 9.)						- 11115		
-	3. PROPOSED USE								
		9 1	JTHOL	OGIC	100		- (250010	*****	
	☐ Industrial ☐ Stock ☐ Waste Disposal or Injection	Bore			LUG				
;	Other (specify type)		From	pth To	1	Material *			No
_	4. METHOD DRILLED		ט	2	SAN	DY TOP SOIL		163	X
	ă Rotary ☐ Air ☐ Auger ☐ Reverse rotary	12	40	40	SANI	D & GRAVEL			K_
	☐ Cable ☐ Mud ☐ Other	8	280	315	BROL	OMPUSED GRANITE S WN SANDSTONE	AND		<u>K</u>
	(backhoe, hydraulic, etc.)	8	315	420	DEC	UMPOSED GRANITE S.	AND		<u>k</u>
-5	. WELL CONSTRUCTION	8	420	425	BROK	KEN BROWN ROCK OMPOSED GRANITE S	1150	X	_
87	Casing schedule:	8	1460	480	LIGH	IT COLORED SANDST	ONE	Y	-
	Thickness Diameter From To	6	480	530	DEC	DMPOSED FINE GRAN	ITE SAND		
	. 250 inches & inches + 1 feet 480 feet . 250 inches 4 inches +2 feet 540 feet	6	560	580	COUR	GRAY SANDSTONE	CAMD	X	_
	inchesfeetfeet						-181412		
	Was casing drive shoe used? Ø Yes □ No Was a packer or seal used? □ Yes Ø No	-							_
	Perforated?						-		-
	How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun						un i		
	Size of perforation?inches byinches Number From To								_
	perforations feet feet								
	perforationsfeetfeetfeetfeetfeet	-							
	Well screen installed? ☐ Yes ☐ No								_
	Manufacturer Type								
	Top Packer or HeadpipeBottom of Tailpipe								
	Diameter Slot size Set from feet to feet Diameter Slot size Set from feet to feet				17	113610 E			
	Gravel packed? ☐ Yes ☑ No ☐ Sizo of gravel				L L	11: (5:51)	The		
	Placed fromfeet tofeet				-//	(C) 3 (S)			
	Surface seal depth 40 Material used in seal:   Cement yrout					JUN 23 1993	50,	-	-
	🖸 Bentonite 🗆 Puddling clay	-			Das		·		
	Sealing procedure used:  ☐ Slurry pit ☐ Temp. surface casing ☐ Overbore to seal depth				- 501	Continent of Water Resource Western Regional Office	ės –		
	Method of joining casing:					- Symmar Office			
	☐ Solvent Weld ☐ Cemented between strata	10.		03					
_	Describe access port	'	Nork s	tarted .	4-19	9-93 finished _	6-5-93		_
6.	LOCATION OF WELL	11. 3	PILLE	R'S C	ERTIF	CATION			
	Sketch map location must agree with written location.	1	We ce	ertify th	nat all	minimum well construc	tion standar	ds w	ere
	Subdivision Name	•	omplie	d with	at the	time the rig was remove	ed.		
	w : • · · · · · · · · · · · · · · · · · ·	F	irm Na	ame Co	1,1		o. 42		_
	Lot No Block No			10	16 C	LL, 10 \$360 Date		,	/
	Address of Well Site					upervisor	AST .	1	-
	Address of Well Site(give at least name of road)				ind	0	and the		-
_	SE 14 NW 14 Sec. 35 , R.1W E O or W X			(Ope	erator)	(Il different then the D	Crilling Super	visael	_

im 7.ii. Î 13

1 of 2

### STATE OF IDAHO ARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

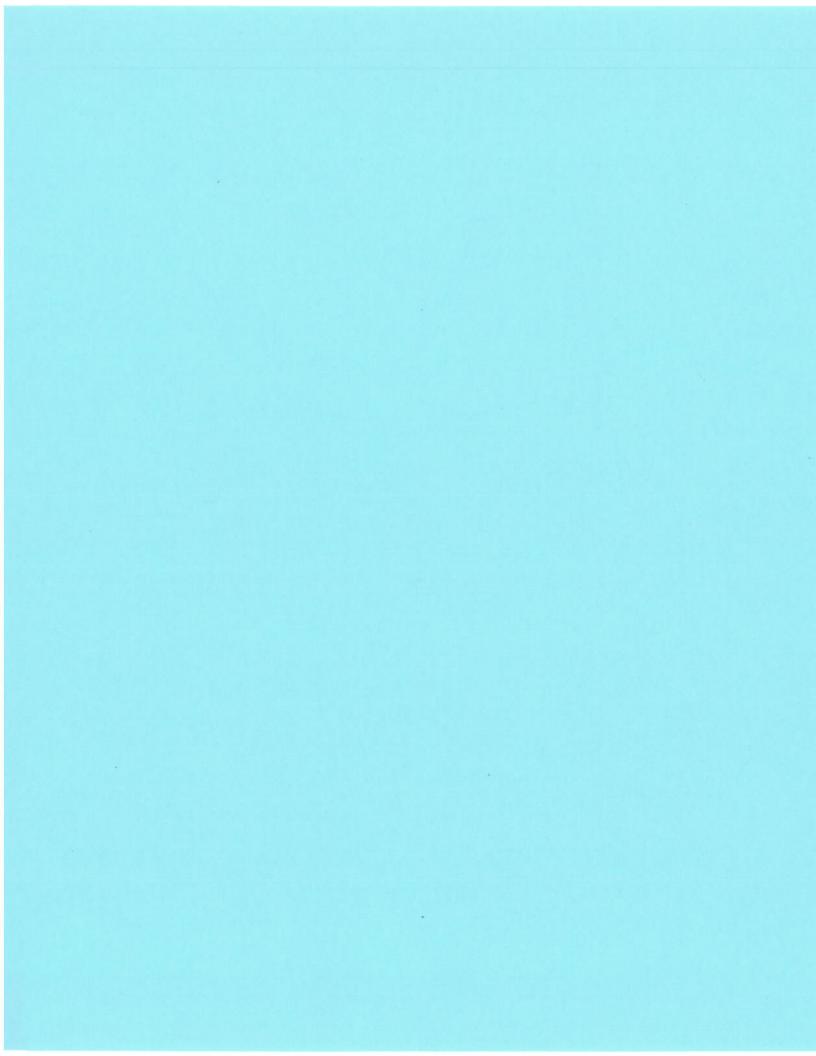
### WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

. WELL OWNER	7.	WATE	ER LE	VEL	
Name Don B. Jensen  Address Rt. 1, Star, ID 83669  Owner's Permit No.	Static water evel feet below land surface. Flowing?				
NATURE OF WORK	8.	WELL	. TEST	T DATA	
New well □ Deepened □ Replacement		☐ Pu	מוח	[] Bailer	
☐ Abandoned (describe method of abandoning)	C	Discharg			
. PROPOSED USE					
II Domestic ፟ Irrigation ☐ Test ☐ Municipal	· 9.	LITH	nLog	ic Log	
! I Industrial	Hole	Der	oth	Water	
[ ] Other (specify type)	Diam.	From	То	Material Yes N	
. METHOD DRILLED -	28_	1., 0	11	Topsoil & Dirt	
		33		Brn. Clay w/some Sand	
Li Rotary Air Hydraulic Reverse rotary				Sand Med, to Crse. w/some Pea Grave Brn. Clay.w/some_Sand	
Cable   Dug   Other				Sand Med to Crse w/some Clay	
		109		Sand Fine to Med	
. WELL CONSTRUCTION		148	161.	Clay, Shale & some Sand	
Casing schedule: 🖾 Steel 🗆 Concrete 🗆 Other			181	Sand, & Clay mixed	
Thickness Diameter From To . 250 inches 16 inches 2 feet 30 feet . 250 inches 16 inches 70 feet 110 feet		181		Sand Med. to Crse. Sand Fine to Med. w/Sandstone & C.	
. 250 inches 16 inches + 2 feet 30 feet		201		Sand Med, to Crse,	
. 250 inches 16 inches 70 feet 110 feet		204		Sand Fine to Med. s/some Clay	
. 250 inches 16 inches 150 feet 180 feet . 250 inches 16 inches 190 feet 220 feet		217	256	Sand Med. to Crse.	
Was casing drive shoe used? ☐ Yes ☑ No		256		Sand Fine & some Sandstone	
Was a packer or seal used?  Yes  No		25 <u>9</u> 262	262.	Sand Med to Crse	
Perforated?   Yes   No				Blue & Brn. Clay w/some Sand	
How perforated?				Sand Med. to Crse. w/Pea Grayel	
Size of perforation inches by inches		317	3,36	Sand Med. to Crse.	
Number From To feet feet				Blue Clay w/some Sand	
perforations feet feet				Sand Crse.	
perforations feet feet		324.	100000000000000000000000000000000000000	Crse. Sand & Pea Gravel w/some dlay	
Well screen installed? □ Yes □ No			1		
Munufacturer's name Roscoe Moss					
Oiumeter 16 Slot size 80 Set from 110 feet to 120 feet					
Diameter 16 Slot size 80 Set from 180 feet to 190 feet				- - - -	
Gravel packed? (X Yes   No   Size of gravel 3/8 minus				· · · · · · · · · · · · · · · · · · ·	
Placed from 20 feet to 370 feet					
Surface seal depth 20! Material used in seal: Cement grout  If Puddling clay Well cuttings					
Scaling procedure used: Sturry pit Temp. surface casing					
CI Overbore to seal depth					
Method of joining casing:   Threaded   Welded   Solvent  Weld					
☐ Cemented between strata					
Describe access port 2" pipe welded on side of casin	g 10.	Wo	rk star	rted 2-1-80 finished 2-20-80	

25 T. 6N N/S, R. 1W E/M.

% NW \_ % Sec.



Form 238-7 11/97

### IDAHO DEPARTMENT OF WATER RESOURCES

### WELL DRILLER'S REPORT

		RCES		i		e Use Only		
PO	RT			inspe	cledby		Soc	
				I wp	+14	Rge 1/4	_560 _	
11.		. TES		Lat:	<u> </u>	Long:	Artesian	-
			☐ Bailer			ing Level		Time
,	ield gal.		Drawdown / 00			70	2	
	95	_	1 40				-	254
-	-							
		-				Bottom	hole temp	3
	Temp.						noie temp	,
Water	Quality	test or	comments: .	- N. 11111-12-1-1		epth first Wat	er Encoun	tor
	LITLIC	1 001	C LOG: (De					
12.	LIIHC	LUGI						_
Bore Dia.	From	То	Remarks: Lith	ology, W	ater Qu	ality & Ter	nperature	Y
17	0	2	brown cl	av t	opso	il.		
	2	11	tan sand	-				
	11	42	sand & 1		ave1			
	42	46	gravel 8					
	46	48	brown cl			vel		_
	48	80	sand & g	rave	1.			X
	80	87	brown cl					1
	87	-	gravel					X
		129	tan clay		rave	L		
	129	138	blue cla	у				-
	138	156	tan clay					+
hoj	156	175	blue cla					+
		185	brown cl					+
	185	193	sand					X
		217	blue cla	y				+
_		222	sand & g	rave	1			7
-	222		blue cla	y wi	th_s	and st	ceaks	- <del> </del> x
12		339	brown cl	ay &	_blu	e clay		x
-		359	coarse s		& gr	avel		1,
8		373	tan clay		,	1		
$\vdash$	3/3	500	blue cla	IYA I	ine_	sana si	-reak	1
-	+-							T
-	+-		swedge 1	20150	- 10	" nine	51 10	770
-	+-	1	Swedge	Jacke		-P-P-		To
	+-	-			DC	CEIV	ED	
	0	CAN	ED		-112	-OLIV	L.D	
	3	Chara			MAJ	2201	nna	$\perp$
	AF	RO.	2003		MAI	R 2 6 2	.003	$\perp$
	AT	11.0	1 2000		WA	TER RESOU	RCES	$\perp$
					WE	STERM RE	TION	1
								-
C	mplete	ed [	Depth 3	64	-30.15(1-5)		(M	easu
	and a second	tarted		- WANTED TO		completed_	3/19	/03
		- '- '-				- N		
13.	חח	ILLER	'S CERTIFA	MATIN	M		4	

Stevens & Sons

0029062
. WELL TAG NO. D
DRILLING PERMIT NO
Other IDWR No
OWNER: 11 n reason/Trellis Sub.
OWNER: Donald B Jensen/Trellis Sub.
Name 8661 W Beacon Light RD Address XBAXXAXStar State ID Zip 83669
Address_XXXXXXXStarState_ID_Zip_83669
3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.
N N
Twp. 5 North or South L
Rge. 1 East or West 5/Eur
Twp. 5 North XX or South C  Rge. 1 East C or West XX  Sec. 33 1/4 S/W 1/4 S/E 1/4  Gov't Lot County Ad 2 acres 160 acres
Gov't Lot CountyAda
Lat: : Long:
Address of Well Site 1200' west, 600'
Address of Well Site or thof intersection beacon Lity Hwy 16 Star (Give at least name of road . Distance to Road or Landmark)
(Give at least name of load + Oraname to
t BlkSub. Name_unplatted
4. USE:
□ Domestic □ Municipal □ Monitor □ Irrigation □ Thermal □ Injection □ Other 48 lot subgolf pro
☐ Thermal ☐ Injection ☐ Other 46 102 Bd3g011 F
TYPE OF WORK check all that apply (Replacement etc.)
New Well  Modify  Abandonment  Other
D. DRILL METIOD
6. DRILL METHOD  ☐ Air Rotary ☐ Cable
☐ Air Rotary ☐ Cable 🏯 Mud Rotary ☐ Other
7. SEALING PROCEDURES
7. SEALING PROCEDURES  SEALIFILTER PACK AMOUNT METHOD  SEALIFILTER PACK AMOUNT METHOD
Air Rotary Cable Mud Rotary Other
Air Rotary
Air Rotary Cable Mud Rotary Other
Air Rotary Cable Mud Rotary Other
Air Rotary

Depth flow encountered \_\_\_\_\_ft. Describe access port or

control

devices:\_

Company Name

Driller or Operator

Firm Official

and

Form 238-7 3/95-C96

# IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

15000	ted b		Use O	nĺy		
wp		Rgo	Šaraja –	Sec		
	1/4		1/4		1/4	
at	-:	:	Long	:	:	

. DRILLING PERMIT NO. 0 -0 -2 -9012 -	11. V	VELL	TEST	rs:		
Other IDWR No.	15707742 100	□ P	ump	☐ Bailer ☐ Air ☐ Flowing Artesi	an	_
				wdown Pumping Level Tone		$\dashv$
LOWNER:	75GPM			458 2hours		ᅥ
Name Trae and Johnna Buchert			-		-	$\dashv$
Address 5446 N. Emmett Hwv.		m	(00	Day beleases		_
City Eagle State ID Zip 83616	Water	Temp	. 60De	2F Bottom hole temp.		_
LOCATION OF WELL by legal description:	Water	Quair	ty test o	or comments:  Depth first Water Encountered 264	ft	_
Sketch map location must agree with written location						_
N .	12. L	ITHO	LOG	IC LOG: (Describe repairs or abandoum	eux)	
Twp. 5 North ⊠ or South □						
Rge. 1 East Or West 🗵	Water	From	To	Remarks: Lithology, Water Quality & Temp.	IV	N
E 200 1/4 NE 1/4	Bore	rrom	10	Remarks: Likewogy, water Quamy as 1 cmp		
Sec. 28 1/4 SW 1/4 NE 1/4		0	2	Top Soil		X
	"	2	20	Sandy Clay		X
Gov't lot County Ada	80	-20	-26 -	Sandy Clay		X
Lat: ; ; Long: ; :	79	26	63	Coarse Sand		X
Address of Well Site 5446 N. Emmett Hwy	-	63	156	Tan Clay with Sand Strips		X
	-	156	170	Coarse Sand		X
City Eagle  Cive at least name of road + Distance to Road or Landmark)	-	170	243	Sandy Clay		Ϊχ
	-	243	280	Coarse Sand	X	
.t Bik Sub. Name	-	280	328	Tan Clay		X
	1	328	360	Blue Clay	-	13
LUSE:	-			Coarse Sand	X	f
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation	1	360	370		- -	-
☐ Thermal ☐ Injection ☐ Other	6"	370	410		٠.	X
5. TYPE OF WORK check all that apply (Replacement etc.)	"	410	418	Sand	X	
New Well	"	418	426	Blue Clay	- -	X
6. DRILL METHOD	"	426	430	Fine Gray Sand	X	
Air Rotary □ Cable □ Mud Rotary □ Other     Other	"	430	448	Blue Clay	_	X
7. SEALING PROCEDURES	"	448	460	Gray Sand	X	
SEAL/FILTER PACK AMOUNT METHOD						
Material From To Sacks or				RECEIVED		7
Bentonite 0 100 1000Lbs Poured						
Bentonite 0 100 10001 bs Poured			1	IAN 11 9 2003		┰
	-		+	JAN D 3 COOS	$\neg$	╁
	-		+	WATER RESOURCES	7	Ť
Was drive shoe used? ⊠ Y □ N Shoe Depth(s) 448ff	-		+	WESTSAN REGION		+
Was drive shoe seal tested? ☐ Y ☐ N How?			-		+	╬
8. CASING/LINER:			-			╬
Diameter From To Gauge Material Casing Liner Welded Threaded					-	4
6" +2 448 250 Sizel 🗵 🗆 🖾	_		-		+	
5" 445 450 258 Steel X					- -	#
			1		- -	4
Length of Headpipe 5ft Length of Tailpipe						1
9. PERFORATIONS/SCREENS	Con	nplete	d Dep	th: (Measurable		
☐ Perforations Method			ed 12-1		-02	
Screen Screen Type johnson	13.	DRIL	LER"	S CERTIFICATION		
	I/We	certif	y that a	all minimum well construction standards were	=	
From To Slot Size Number Diameter Material Casing Lines	com	plied v	vith at 1	the time the rig was removed.		
450 460 .012 — 5" SS 🗆 🗵						
	Firm	ı Namı	COO	NSE WELL DRILLING - Firm	No. 4	109
			-	Jany & Coons pate		
10.000.000.000	Firm	Offic	ial 🔀	fally 2 Clerks pate	1-3-0	)3_
10. STATIC WATER LEVEL OR ARTESIAN				1/1/11/		
The Control of the Co					1 2 0	13
PRESSURE:	Sup	ervisor	or Ope	erato to Date	1-3-0	,,,
264ft_ below ground Artesian Pressurelb	Sup	ervisor	or Ope	(Sign once if Firm Official & Operator)	1-3-0	,,,
	WELLINGS.		10 <del>.0</del> 0		1-3-0	,

Form 238-7 IDAHO DEPARTMENT OF WATER RESUM 6/02 WELL DRILLER'S REPORT	UNUES	Inspected by	
		Twp Rge Sec	-
1. WELLTAG NO.D		1/4 1/4 1/4 1/4 1/4	
DRILLING PERMIT NO	12 WELLTESTS:	26. 115. 44.	
Water Right or Injection Well INC.	☐ Pump Y:eid gal/min.	Crawoown Pumping Level Tim	149
2 OWNER: 0 1)-11 N	100 - 200		ur
Spring When teveropment at	10 300		
Accress 40 1 - 17 tocas - 02/ 1/-			
City Eagle State 12 2p 52019.	Water Temp.	72 Bottom hole temp	·
3. LOCATION OF WELL by legal description:	Water Quality test or o	comments: From 15 PH 75	
You must provide address or Lot, Blk, Sub. or Directions to well.	Grains -	5 Depth first Water Encount	ter
Two. 5 North X or South L	13. LITHOLOGIC L	.OG: (Describe repairs or abandonment)	Water
Rge East	Bore From To	Remarks: Lithology, Water Quality & Temperature	YN
Sec. 23 1/4 NE 1/4 SW 1/4	Cia.		_
Gov't Lot County HOO.	A 0 3	top Soil & clay	-
Lat: : Big Gulch Sw of Willow	" 3 30	corse sand	
City table	· 30 55 • 55 60	Grown clay	
Gase of and make a close - Distance is Anual or Concerns)  Lt Blk Sub. Name	* 60 70	Drown Clay	
LL OIK GUD. Pall N	" 70 120	soft & hand clay layers	
		Sand & Clay	
4. USE:	* 130 135		
□ Domestic □ Municipal □ Monitor □ Irrigation □ Thermal □ Injection ▼ Other □ Test □	1 135 150	clay	
☐ Thermal ☐ Injection ☐ Cother ☐ LeST	11 150 190	clay w/some sand layers	
5. TYPE OF WORK check all that apply (Replacement etc.)	11/190 200		$\vdash$
New Well   Modify   Abandonment   Other	m. 500 510	clay we sand	
6. DRILL METHOD:	20 280	coarse sound willittle chay	
□ Air Rotary □ Cable ▼ Mud Rotary □ Other	1 280 290	Coarse Sand	
The House	- 340 350	Whish coarse sand w/ some woo	4
7. SEALING PROCEDURES		Coarse blue sand	
Seal Material From To Weight / Volume Seal Placement Method		coarse blue sand	
20% Chart 140 0 - PRESURE GROWN		blueclay	
Was drive shoe used? LIY LIN Shoe Depth(s)	" 470 815	blue clay	
Was drive shoe seal lested? TY TN How?			
			$\vdash$
8. CASING/LINER:  Deposite Francisco Metadal Casing Liner Wested Threaded		RECEIVED	
Chamber From 15 Gaoge Material			
8° +2 278 250 Shal to 0 1	1 - 1 1	APR 19 2004	
		WATER -	
Length of Headpipe Length of Tailpipe		WESTERN REGION	$\vdash$
Packer DY DN Type			+-
9. PERFORATIONS/SCREENS PACKER TYPE	ļ		+
Perforation Method PERF. 8" (45WG, 10F)	<del></del>	<del></del>	
Screen Type & Method of Installation SHUTTER SCREEN (6) FT			1
From To Skrt Size Number Diameter Material Casing Lines	Completed Depth	350 (M	leasurable
280 340 48 MMY B" STEL 1	Date: Started	3110104 completed _4.10	2.04
340 350 1/8 60 8" STEEL 11 1		9172,2	
	14. DRILLER'S C	minimum well construction standards were complied with	th al the
10. FILTER PACK  Filter Material From To Weight / Volume Placement Method	time the rig was ren	noved.	
TIE PER GRAVEL 290 242 - POUR	S	Minson Pump & Driet Firm N	to. 45
THE STATE OF THE S	Company Name	9	
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	Principal Doller		15-0
161 It. below ground Artesian pressurelb.	and Driller or Operator	Dave Cedamionor 4.19	5-06
Depth flow encounteredft. Describe access port or control devices:	18538	, ,	
well cap	- Operator I	Principal Driller and Rig Operator Required.	
		perator I must have signature of Driller/Operator II.	
	V TO WATED DECC	NIDCES	

602 WELL DRILLER'S REPORT	Inspected by	200-000
	Twp RgeSec	
1. WELL TAG NO. D	1/4 1/4 1/4	
CRILLING PERMIT NO.  Water Right or Injection Well No.	12 WELL TESTS: Lat: : Long: : :	100
Water Highli or injection free No.	Pump Bailer XI Air Flowing Artesian  Yield calumin. Drawdown Pumping Level Time	
2. OWNER:	Yield gallmin. Drawdown Pumping Level Time	
Name Spring Walley Development LC  Address 485 E. Rueside Ar	110	
( · · · · · · · · · · · · · · · · ·		
City Eagle State 1d 2085/1016	Water Temp. 80 Bottom hole temp.	
3. LOCATION OF WELL by legal description:	Wates Quality test or comments: Trop. 5 PU 7.5	
You must provide address or Lot, Blk, Sub. or Directions to well.		59
Twp. 5 North X or South A	13. LITHOLOGIC LOG: (Describe repairs or abandonment) Wa	ater
	Bore From To Remarks: Lithology, Water Quality & Temperature Y	N
Sec. 13 1/4 SE 1/4 NW 1/4  Gov't Lot County	BO 10 Sandy Soil	+
Lat: : Long: : .: D.	10 96 tanday	$\vdash$
Address of Well Site I Mel. She of Willow Creek Pd	" 96 105 blue clay	
City Earle	8 105 134 blue clay	
Lt Sub. Name	4 134 140 Anday	
	" 140 195 pea graine & clay	1
4. USE:	195 360 Haray sound & clay	$\vdash$
□ Domestic □ Municipal □ Monitor □ Irrigation	" 360 367 loansesund 9 clay like	+
☐ Thermal ☐ Injection ★ Other	- 367 505 Fine & coase sand	+-
5. TYPE OF WORK check all that apply (Replacement etc.)	" 505 540 lorger Dea Gravel	$\dagger$
5. TYPE OF WORK check all that apply (Replacement etc.)  X New Weil  Modify  Abandonment  Other	" 540 540 per growl wil large Sand gaar	FZ
<b>J</b>	" 590 595 quartz sind X	
6. DRILL METHOD:	" 595 605 "Finer Jan Sand	-
Air Rotary Cable Mud Rotary Other	" 605 600 quartz sand X	+
7. SEALING PROCEDURES	" 620 640 Firer sand X	+
Seal Material From To Weight / Volume Seal Placement Method	* 640 645 guntz sand X	1 -
Bentonilo 0 105 3150# Overbore	" 65 65 Guartz sand & some poo ground X	t
720;	i 600 670 big somd	T
Was drive shoe used? XY \( \text{N} \) Shoe Depth(s) \( \text{7.38} \) Was drive shoe seal tested? \( \text{Y} \) XN \( \text{How?} \)	" 670 680 bid sand X	T
That time since seal lesied:	1 680 685 bio sand	_
8. CASING/LINER:	" 685 690 big sand X	+
Ciameter   From To Gauge Material Casing Liner Welded Threaded	" 1690 130 big sand X	+
8 +2 738 250 Stul 50 3	1. 730 740 big sand X	
	Due to heaving sound - a mixture of	+
Length of Headpipe Length of Tallpipe	Sand & cement was placed from 730 to	74
Packer		I
O DEDEGRATION OF CHECKED TYPE	RECEIVED	1
9. PERFORATIONS/SCREENS PACKER TYPE Perforation Method STAR PERF. 4 ROWS @ JOINT 90 PERF	2 140 40 0001	+
Screen Type & Method of Installation NOVE PPR ROW	MAR 1 9 2004	+
From To Slot Size Number Diameter Material Casing Liner	Completed Depth 730 WATER RESOURCESsun	able
560 580 1/4 360 8" 250 WHUE	WESTERN HEGION	
580 600 1/4 360 B" CASWEL & [		2)
T	<ol> <li>DRILLER'S CERTIFICATION</li> <li>We certify that all minimum well construction standards were complied with at the</li> </ol>	he
Filter Matterfal From To Weight / Volume Placement Method	time the rig was removed.	110
Continued on Dose 2.	Company Name Adamson Pump & Dreling No. 4	5
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	Principal Dille Adve Comson Date 3:15 4	Or
4.55 ft below ground Artesian pressure lb.	Driller or Operator II Dave Adamson Date 3.15 C	V
Depth flow encounteredtt. Describe access port or control devices:	omer or operator is	
- Shel plate	Operator I Date	
•	Principal Driller and Rig Operator Required.  Operator I must have signature of Driller/Operator II.	

Form 238-7 IDAHO DEPARTMENT OF WATER RESO 6702 WELL DRILLER'S REPORT				Inspected by				
				Twp F	igeSe	c	-	
1. WELL TAG NO. D 0030892 2					1/4	1/4 : :		
DRILLING PERMIT NO.  Water Right or Injection Well No.	12 WELL			Lat: : :	Long: Flowing Artes			22.
Water Fught or Injection free No.	Yleid gr	Pump	Bailer		ng Level	Time		٦
2 OWNER:	ned gr	211146	0.2.00					
Name Spring Chiley Development LC Address 485 E. Riverside Dr. 78870110								_
City Fagle State Ta Zp 83616								_
								-
3. LOCATION OF WELL by legal description:	Water Qua	ity test or	comments:					_
You must provide address or Lot, Blk, Sub. or Directions to well.  Two 5 North X or South L	-			De		Encounte		
Roe / East □ or West ▼	13. LITHO	LOGIC		ribe repairs or abs			Water	
Sec. 13 1/4 SE 1/4 NW 1/4	Dia. From	То	Remarks:	Lithology, Water Cu	uality & Tempera	ature	Y	4
Gov't Lot County Page								
Address of Well Site   Mule Sw of Willow Creek Rd			!		<b></b> - · ·	-	-	$\dashv$
Big Gulch City Fogle			<del></del>				-	$\dashv$
Control and Assessment of Control 2 Steamen in Roand or Liverteened	-  -			<del></del>			+	$\dashv$
Lt Blk Sub. Name	-			<del></del>			$\dashv$	$\dashv$
		+-	-					
4. USE:								
☐ Domestic ☐ Municipal ☐ Monitor ☐ Imgation ☐ Thermal ☐ Injection ★ Other test								
☐ Thermal ☐ Injection ☐ Other							$\rightarrow$	
5. TYPE OF WORK check all that apply (Replacement etc.)								-
X New Well  Modify  Abandonment  Other		-	<u> </u>					-
6. DRILL METHOD:	$\vdash$	_	<u> </u>					
XI Air Rotary  □ Cable  □ Mud Rotary  □ Other		+						
7. SEALING PROCEDURES  Seal Matterial From To Weight / Volume Seal Placement Method							-	
Sea Material Profit to Magnit Manie		-	-				-	
		-					$\neg$	- 82
Was drive shoe used?			-					
Was drive since seal tested? ☐ Y ☐ N How?								
8. CASING/LINER:						+	-	
Clameter From To Gauge Material Casing Liner Welded Threeded	<b>'</b>						-+	-
		+-	<del> </del>					
	<u> </u>		1					
Length of Headpipe Length of Tailpipe .								
Packer LIY N Type							-+	_
9. PERFORATIONS/SCREENS PACKER TYPE	<u> </u>						-+	_
Perforation Method STAR PORT. 4 ROWS @ JOHNT 90 DORF	s <del>                                    </del>	-	-					
Screen Type & Method of Installation PFR Row (360)								
From To Slot Size Number Dlameter Material Casing Lines (640 640 44 360 84 250 WHL 8	Comple	ted Depth				(Me	asurab	lc)
640 660 14 360 8" 250 WILL 8 1	Date:	Started			Completed _			_
680 700 1/4 ZID B" - W			CERTIFICAT	ION				
700-720 1/4 360 8H 3 X	VWe certi	fy that all	minimum well	construction stand	lards were com	plied with	at the	ě
Filter Material From To Weight / Volume Placement Method	time the r							
720 - 730	Company	Name	damson	Hump &	Dulline	Firm No	45	1.
14 07:20	Principal	8		Aump &	פוכול אינו ש	3.15	5-04	!
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:tt. below ground Artesian pressuretb.	and		No.	N. I.	A)	210	1.01	j
Depth flow encountered ft. Describe access port or control devices:	Driller or	Operator	11 True	Adams	OV. Date	2.12	2-04	
	Operator	ıı			Date			_
	97 E		Principal D	riller and Rig Opera t have signature of	niller/Operator	r IIL		
FORWARD WHITE COP	Y TO WATE	R RESC	OURCES	r vere adremme m	Dimen operation			

### IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILL

Form 238-7 IDAHO DEPARTMENT OF WATER RESO	Office Use Only UBCES Well ID No. \$1559	7
WELL DRILLER'S REPORT	Inspected by	
1. WELLTAG NO. D	Twp RgeSec	-
DRILLING PERMIT NO. 815597	12. WELL TESTS: Lat: : Long: :	:
Water Right or Injection Well No.	Pump Bailer Air Flowing Artesian	
2. OWNER:	Yield gal./min. Drawdown Pumping Level Tis	me
Name SUNCAR	AIR 504AN	
Address 485 EAST RIVERSINE DR SUITE 300		
City <b>EAGLE 10</b> State 10 Zip 83616		
S. LOCATION OF WELL by least descriptions	Water Temp Bottom hole tem	р
LOCATION OF WELL by legal description: You must provide address or Lot, Blk, Sub. or Directions to well.	Water Quality test or comments:	
Twp. 25 North X or South 🗆	Depth first Water Encour	
Rge. O/ East X or West □	13. LITHOLOGIC LOG: (Describe repairs or abandonment)	Water
Sec. 8 , SW 1/4 SW 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4	Bore Dia From To Remarks: Lithology, Water Quality & Temperature	YN
GOV ( LD)	12 / 15 TOP-SAIL & SAND	
Lat: : : Long: : : Address of Well Site 1/2 MILE NE OF WILLOW CREEK	15 35 SAVOY CLAY	
	( 35 360 COARSE SAND	
(Can at least name of med a Distance in Read or Laudinists)	1 360 380 COARSE SAND +CLAY	
Lt. Blk. Sub. Name	380 480 COARSE SAND & CLAY MIN	
	480 490 COARSE SAND & CLAY MINE	
4. USE:	490 505 TAN CLAY	
□ Domestic □ Municipal □ Monitor □ Irrigation	505 520 SAND 4CLAY MIN	++
☐ Thermal ☐ Injection ☐ Other TEST WELL	630,560 SAVI + CUTY	
5. TYPE OF WORK check all that apply (Replacement etc.)	560 590 MORE SAND LOS CLAY COARSE	
New Well  Modify  Abandonment  Other	1 590 620 CLAY TAN & WHITE	
	620 632 CLAY W/ SAND STREAKS	
6. DRILL METHOD:	632 640 SHOET SAUD STEERIS INCLAY	
☐ Air Rotary ☐ Cable	( 640 660 TAN CLAY	
7. SEALING PROCEDURES	1 660 670 TAN CLAY	
Seal Material From To Weight / Volume Seal Placement Method	670 680 SOFT WHITISH CLAY	
30% B. Glaur 1 500 \$ 000 LB PRESULE GRAINE	680 687 WHITISH CLAY +BLUE CLAY-SAUD	$H \rightarrow H$
30% B. GROWT 1000 770 1470 LB PERSURE GROWTH	687 690 HARD CLAY BLUISH 690 715 BLUE CLAY - COARSE SAND	+++
Was drive shoe used? BY UN Shoe Depth(s)	715 740 BLUE CLAY HARD Y BOET	+++
Was drive shoe seal tested? TY XN How?	740 760 BLUE CLAY	
8. CASING/LINER:	760 800 BLUE CLAY	
Diameter From To Gauge Material Casing Liner Welded Threaded	800 815 BLUE CLAY SHORT SOFT SAOTS	
8" +2 600 250 STEEL 8 17 C	( 825 835 BLUE CLAY	
6" 630 600 250 STEEL 0 W 8 0	835 860 BLUE & WHITE CLAY	$\vdash$
	860 880 BLUE CLAY W/ COARSE SAND	
Length of HeadpipeLength of Tailpipe	880 920 SOFT BLUE CLAY 920 940 BLUE CLAY RECE	IVEY
racket left LN Type	1970 940 BLUE CLAY BEUL	-001
9. PERFORATIONS/SCREENS PACKER TYPE	1 940 980 BLUE CLAY 1 980 1905 BLUE CLAY AUG	6 300
Perforation Method		FEGURGE
Screen Type & Method of Installation Statutes St	WATER	BRN REGION
	Completed Depth 170 (M	leasurable)
640 680 40 - 6 STANLES U	Date: Started 6.7.04 Completed 7.	2904
000 000 000	14. DRILLER'S CERTIFICATION	
10. FILTER PACK	I/We certify that all minimum well construction standards were complied wi	th at the
Filter Material From To Weight / Volume Placement Method	time the rig was removed.	
NONE	Company Name ADAMSON PUMP & DOILLING Firm N	457
	Λ.	
11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:	Principal Drilles Dave Adamson Date 7-3	50-04
485 ft. below ground Artesian pressurelb.	Driller or Operator II Days Odomson Date 7:	30.04
Depth flow encounteredft. Describe access port or control devices:	United of Operation is	-
well cap	Operator I Date	
•	Principal Driller and Rig Operator Required.  Operator I must have signature of Driller/Operator II.	
FORWARD WHITE COP	TO WATER RESOURCES	

GECOND SUR-10 WELL

WELL DRILLER'S REPORT
State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

WELL OWNER  Name  Address  Drilling Permit No.  Water Right Permit No.  Water Right Permit No.  NATURE OF WORK  New well  Well diameter increase  Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)	Sta File Arr Co	atic wa owing? tesian ontrolle mpera	d by:	es No G.P.!  in pressurep.s.i.  Valve Cap Cap  **F. Quality God  Describe arrestan or temperature zone	M. flow	30000000	
	9. LI Bore Diam.	Der	ogic L	og Material		Water Yes N	_
METHOD DRILLED  ### Rotary	260/2601	70 VV	XXXX	Grante St.	Soft Clay	X	XXXX
Casing schedule: Steel   Concrete   Other	10.	Work	0	RECEIVED  CT 1 9 1993  WATER RESOURCES WESTERN REGION  8-15-93 finishe	5./3 22 ad 9-7-	7	
Sketch map location must agree with written location.  Subdivision Name  Lot No. Block No.  County  Address of Well Site  (give at least name of road)  T. Word or S County  R. Word or S County  Address of Well Site	11.	I/We comp Firm Addre	certify lied wit Name ss 4	that all minimum well const hat the time the rig was ren on the firm that the time the rig was ren on the firm of	n No. 3	26 ells	

# Appendix F Additional Water Chemistry Data

### Analytical Lataratories, Inc.

1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

### Laboratory Analysis Report

Sample Number: 0418190

Attn: TERRY SCANLAN, P.E., S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105

BOISE, ID 83706

Time of Collection:

14:15

Date of Collection: Date Received:

6/7/2004 6/7/2004

Report Date:

6/21/2004

Collected By: T SCANLAN

Submitted By: T SCANLAN

Source of Sample:

WADE LYNN WELL

#### FIELD TEMP=30.5 C FIELD EC = 278 US FIELD SC = 254 US

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Arsenic Furnace		<0.005	mg/L	0.005	SM 3113 B	6/19/2004	DMB
Calcium, Ca		17.2	mg/L	0.10	EPA 200.7	6/11/2004	ЛH
Iron, Fe		0.08	mg/L	0.05	EPA 200.7	6/11/2004	JН
Magnesium, Mg		2.84	mg/L	0.10	EPA 200.7	6/11/2004	JН
Manganese, Mn		0.19	mg/L	0.05	EPA 200.7	6/11/2004	ЛН
Potassium, K		2.0	mg/L	0.5	EPA 200.7	6/11/2004	JН
Silica		37.4	mg/L	0.25	EPA 200.7	6/14/2004	JН
Sodium, Na		30.3	mg/L	0.10	EPA 200.7	6/11/2004	JH
Nitrate (as N)		<0.2	mg/L	0.2	EPA 300.0	6/8/2004	ww
Ammonia Direct (as N)		0.58	mg/L	0.04	EPA 350.1	6/11/2004	ww
Bicarbonate		124	mg/L		SM 2320	6/11/2004	ARR
Chloride, Cl		3	mg/L	1	EPA 300.0	6/11/2004	ww
Fluoride, F	ii.	0.30	mg/L	0.10	EPA 300.0	6/10/2004	ww
Hardness		55.4	mg/L	5.0	SM 2340	6/11/2004	ARR
pΗ		7.3	S.U.		EPA 150.1	6/8/2004	ARR
Sulfate, SO4		1	mg/L	1	EPA 300.0	6/11/2004	ww
Total Dissolved Solids		154	mg/L	25	EPA 160.1	6/10/2004	DLR

### Analytical Lab atories, Inc.

1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

### Laboratory Analysis Report

Sample Number: 0418188

Attn: TERRY SCANLAN, P.E., P.G. S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105

BOISE, ID 83706

Time of Collection:

12:20

Date of Collection:

6/7/2004

Date Received:

6/7/2004

Report Date:

6/21/2004

Collected By: T SCANLAN

Submitted By: T SCANLAN

Source of Sample:

CORBETT LYNN WELL

FIELD TEMP=29.8 C FIELD EC = 270 US FIELD SC = 248 US

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed Ana	alyst
Arsenic Furnace		0.027	mg/L	0.005	SM 3113 B	6/19/2004 D	OMB
Calcium, Ca		20.9	mg/L	0.10	EPA 200.7	6/11/2004	JH
Iron, Fe		0.05	mg/L	0.05	EPA 200.7	6/11/2004	JΗ
Magnesium, Mg		0.24	mg/L	0.10	EPA 200.7	6/11/2004	JH
Manganese, Mn		<0.05	mg/L	0.05	EPA 200.7	6/11/2004	JH
Potassium, K		1.3	mg/L	0.5	EPA 200.7	6/11/2004	JH
Silica		40.3	mg/L	0.25	EPA 200.7	6/14/2004	ЛН
Sodium, Na		27.8	mg/L	0.10	EPA 200.7	6/11/2004	JH
Nitrate (as N)		<0.2	mg/L	0.2	EPA 300.0	6/8/2004	ww
Ammonia Direct (as N)		0.05	mg/L	0.04	EPA 350.1	6/11/2004	ww
Bicarbonate		77.2	mg/L		SM 2320	6/11/2004	ARR
Chloride, Cl		4	mg/L	1	EPA 300.0	6/11/2004	ww
Fluoride, F		1.71	mg/L	0.10	EPA 300.0	6/10/2004	ww
Hardness		54.4	mg/L	5.0	SM 2340	6/11/2004	ARR
pН		7.6	s.u.		EPA 150.1	6/8/2004	ARR
Sulfate, SO4		29	mg/L	1	EPA 300.0	6/11/2004	ww
Total Dissolved Solids		120	mg/L	25	EPA 160.1	6/10/2004	DLR

### Analytical Lal ratories, Inc.

1804 N. 33rd Street Boise, Idaho 83703 Phone (208) 342-5515

http://www.analyticallaboratories.com

### Laboratory Analysis Report

Sample Number: 0418189

Attn: TERRY SCANLAN, P.E., S P F WATER ENGINEERING, LLC 600 E RIVER PARK LN STE 105

**BOISE, ID 83706** 

Time of Collection: 12:50

Date of Collection: Date Received:

6/7/2004 6/7/2004

Report Date:

6/21/2004

Collected By: T SCANLAN Submitted By: T SCANLAN

Source of Sample:

LYNN OLD IRRIGATION WELL

#### FIELD TEMP=27.9 C FIELD EC = 296 US FIELD SC = 280 US

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Arsenic Furnace		0.014	mg/L	0.005	SM 3113 B	6/19/2004	DMB
Calcium, Ca		17.1	mg/L	0.10	EPA 200.7	6/11/2004	ЛH
Iron, Fe		< 0.05	mg/L	0.05	EPA 200.7	6/11/2004	JH
Magnesium, Mg		0.45	mg/L	0.10	EPA 200.7	6/11/2004	JH
Manganese, Mn		< 0.05	mg/L	0.05	EPA 200.7	6/11/2004	JН
Potassium, K		1.0	mg/L	0.5	EPA 200.7	6/11/2004	JН
Silica		36.4	mg/L	0.25	EPA 200.7	6/14/2004	ЛН
Sodium, Na		40.9	mg/L	0.10	EPA 200.7	6/11/2004	JH
Nitrate (as N)		1.3	mg/L	0.2	EPA 300.0	6/8/2004	ww
Ammonia Direct (as N)		<0.04	mg/L	0.04	EPA 350.1	6/11/2004	ww
Bicarbonate		94.1	mg/L		SM 2320	6/11/2004	ARR
Chloride, Cl	¥.	6	mg/L	1	EPA 300.0	6/11/2004	ww
Fluoride, F MCL exceeded.		4.09	mg/L	0.10	EPA 300.0	6/10/2004	ww
Hardness		45.6	mg/L	5.0	SM 2340	6/11/2004	ARR
рН		7.9	S.U.		EPA 150.1	6/8/2004	ARR
Sulfate, SO4		19	mg/L	1	EPA 300.0	6/11/2004	ww
Total Dissolved Solids		154	mg/L	25	EPA 160.1	6/10/2004	DLR

#### ANALYTICAL LABORATORIES, INC.

1804 N. 33rd Street Boise, Idaho 83703 Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT SAMPLE NUMBER - 6548

Attn. TERRY SCANLAN

SCANLAN ENGINEERING 600 EAST RIVER PARK LANE SUITE 105 BOISE, ID 83706 Time of Collection: 11:00 Date of Collection: 02/14/03

> Date Received: 02/14/03 Date Reported: 02/26/03

Collected by: C FEAST

Submitted by: C FEAST

Source of Sample: PROJECT NAME: SPRING VALLEY RANCH BIG GULCH 1

Test Requested FRDS # MCL	Analys Result		MDL	Method	Date Completed	Analyst Initials
ANTIMONY FURNACE	<0.005	mg/L	0.005	EPA 200.9	02/24/03	DMB
ARSENIC FURNACE	0.005	mg/L	0.003	EPA 200.9	02/21/03	DMB
BARIUM	0.05	mg/L	0.05	EPA 200.7	02/18/03	JH
BERYLLIUM FURNACE	<0.0005		0.0005	EPA 200.9	02/18/03	DMB
CALCIUM	30.8	mg/L	0.10	EPA 200.7	02/19/03	JH
CHROMIUM FURNACE	<0.002	mg/L	0.002	EPA 200.9	02/26/03	DMB
IRON	<0.05	mg/L	0.05	EPA 200.7	02/21/03	JH
MAGNESIUM	6.65	mg/L	0.10	EPA 200.7	02/19/03	JH
MANGANESE	<0.05		0.05	EPA 200.7	02/21/03	JH
MERCURY	<0.0002		0.0002	EPA 245.1	02/20/03	KLZ
NICKEL	<0.02	mg/L	0.02	EPA 200.7	02/19/03	JH
POTASSIUM	2.1	mg/L	0.5	EPA 200.7	02/19/03	ЯH
SODIUM	19.2	mg/L	0.10	EPA 200.7	02/19/03	JH
THALLIUM FURNACE	<0.002		0.002	EPA 200.9	02/18/03	DMB
AMMONIA DIRECT	<0.04	mg/L	0.04	EPA 350.1	02/18/03	GMM
NITRATE N	0.30	mg/L	0.20	EPA 300.0	02/14/03	GMM
NITRITE N	<0.01		0.01	SM 4500N02-B		CSC
SULFIDE	<0.05	mg/L	0.05	SM 4500 D	02/17/03	JR
BICARBONATE	121			SM 2320	02/20/03	GMM
CHLORIDE	5		1	EPA 300.0	02/18/03	GMM
FLUORIDE DIRECT	0.60		0.10	EPA 300.0	02/21/03	GMM
HARDNESS	107		5.0	SM 2340	02/20/03	GMM
SULFATE	24	mg/L	1.0	EPA 300.0	02/18/03	GMM
TOTAL DISSOLVED SOLIDS		mg/L	25	EPA 160.1	02/18/03	RG

Trichal D-Morie

#### ANALYTICAL LABORATORIES, INC.

1804 N. 33rd Street Boise, Idaho 83703 Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT SAMPLE NUMBER - 6549

Attn. TERRY SCANLAN

SCANLAN ENGINEERING 600 EAST RIVER PARK LANE SUITE 105 BOISE, ID 83706 Time of Collection: 12:00 Date of Collection: 02/14/03

> Date Received: 02/14/03 Date Reported: 02/26/03

Collected by: C FEAST

Submitted by: C FEAST

Source of Sample: PROJECT NAME: SPRING VALLEY RANCH LITTLE GULCH 1

est Requested FRDS # MCL	Analy: Result		MDL	Method	Date Completed	Analyst Initials
NTIMONY FURNACE	<0.005	mg/L	0.005	EPA 200.9	02/24/03	DME
RSENIC FURNACE	0.006	mg/L	0.003	EPA 200.9	02/21/03	DMB
ARIUM	<0.05		0.05	EPA 200.7	02/18/03	JH
ERYLLIUM FURNACE	<0.0005	mg/L	0.0005	EPA 200.9	02/18/03	DMB
ALCIUM	23.9	mg/L	0.10	EPA 200.7	02/19/03	JH
HROMIUM FURNACE	0.004	mg/L	0.002	EPA 200.9	02/26/03	DMB
RON	<0.05	mg/L	0.05	EPA 200.7	02/21/03	JH
AGNESIUM	6.55	mg/L	0.10	EPA 200.7	02/19/03	JH
ANGANESE	<0.05	mg/L	0.05	EPA 200.7	02/21/03	JH
ERCURY	<0.0002		0.0002	EPA 245.1	02/20/03	KLZ
ICKEL	<0.02	mg/L	0.02	EPA 200.7	02/19/03	JH
OTASSIUM	1.7	mg/L	0.5	EPA 200.7	02/19/03	JH
CDIUM	21.2	mg/L	0.10	EPA 200.7	02/19/03	JH
HALLIUM FURNACE	<0.002		0.002	EPA 200.9	02/18/03	DMB
MMONIA DIRECT	<0.04	/I	0.04	EPA 350.1	02/49/07	GMM
ITRATE N		mg/L	0.20	EPA 300.0	02/18/03	
ITRITE N .	<0.01		0.01	SM 4500N02-B	02/14/03	GMM
	300.5	g/ c	0.01	311 43001102 0	02/14/03	CSC
ULFIDE	<0.05	mg/L	0.05	SM 4500 D	02/17/03	JR
ICARBONATE	104	mg/L		SM 2320	02/20/03	GMM
HLORIDE	6	mg/L	1	EPA 300.0	02/18/03	GMM
LUORIDE DIRECT	0.59	mg/L	0.10	EPA 300.0	02/21/03	GMM
ARDNESS	89.7	mg/L	5.0	SM 2340	02/20/03	GMM
ULFATE	21	mg/L	1.0	EPA 300.0	02/18/03	GMM
GTAL DISSOLVED SOLIDS	192	mg/L	25	EPA 160.1	02/18/03	RG

midae 1 - Merce

THANK YOU FOR CHOOSING ANALYTICAL LABORATORIES, INC. FOR YOUR TESTING NEEDS.